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H. H. Root, Assistant Editor
H. G. Rowe, M'n'g Editor

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Pack of five, one-story 10-frame hives, wood covers 10.35
Pack of five, one-story 8-frame hives, metal-roof covers and inner covers 11.80
Pack of five, one-story 10-frame hives, metal-roof covers and inner covers 12.75

With slotted bottom-bar frames, 10c per hive extra.

A. G. Woodman Co., Grand Rapids, Mich.

HONEY MARKETS

U. S. GOVERNMENT MARKET REPORT.

Information from Producing Areas (first half of May).

CALIFORNIA POINTS: Southern California.—The orange flow is reported to have lasted only from April 10 to 20 in parts of Riverside County, where early estimates are heard of a crop one-fourth to one-fifth of normal. In Los Angeles and San Bernardino Counties and south along the coast, the orange flow lasted into May, and one reporter thought it would continue lightly until May 20. Sage and buckwheat are yielding slowly in some sections, and in San Diego County a fair surplus is expected from these and other sources, although beekeepers are hampered by excessive swarming. Total orange and sage yields are expected to be slightly larger than last year's. No early sales of orange honey reported, but beekeepers are asking 12-15c per lb. In the Imperial Valley, where there is an increased acreage in alfalfa, an average or better crop is looked for, and a price of around 8-8¼c per lb. for large lots of light amber alfalfa is considered likely. No honey remains in the Imperial Valley. The mesquite flow in Coachella Valley is over, and yielded about 25 pounds per colony. Beeswax is bringing the beekeeper 27-30c per lb. Central California—The very light flow is proving hardly sufficient for stores, except along the coast where a fairly good sage flow is reported. The weather has been generally cool with only occasional hot days. Some swarming reported. Northern California—With ample rainfall, prospects are for a fair crop. Some white honey offered for 10c per lb.

PACIFIC NORTHWEST—Spray poison has killed many bees in the fruit districts this spring. Prospects for honey flow from first bloom of alfalfa in June not very bright. Few ton-lot sales amber extracted reported at 9½c per lb.

INTERMOUNTAIN STATES.—Weather now more favorable after a long cold spell. In some sections bees are building up well on dandelion, willow and fruit bloom, and considerable nectar is coming in. In other sections lack of rain has resulted in nothing for bees to work on. Many package bees brought in to replace winter losses, which were heavy in numerous apiaries. Some fruit bloom and early alfalfa reported killed by late freezes. Water shortage reported in numerous areas, and rain is needed now for sweet clover. Swarming reported April 28 in Utah—the earliest in many years. Very little honey now remains unsold, and some are unable to fill orders. One car white alfalfa reported sold at 9c per lb., and 1 car white to light amber at 8½c per lb.; small lots 60s, white, 10-12½c; amber, 9c; small pails white, 14-16c per lb. Beeswax has recently brought the beekeeper 30-31c per lb. No sales of comb honey reported.

ARIZONA—Conditions are spotted. Some report mesquite yielding very well and good alfalfa prospects; others report light yield and outlook doubtful. Extracting reported a month earlier than usual, with some apiaries averaging 30 lbs. surplus.

NEW MEXICO—Bees are storing nectar well from mesquite, and some colonies are said to have secured 20 to 30 lbs. of honey; but no extracting reported.

TEXAS—Recent helpful rains over Texas have broken the drouth, which in central Texas had been one of the worst ever experienced Many minor plants are budding, and with the rain, prospects for more honey are favorable. In west Texas, several carloads of bees are being moved to a better location, however, as a result of the poor outlook. The early spring flow, chiefly mesquite, has been extracted, and excellent yields reported in some sections. Comb crop very short. Extracted has sold, in 60-lb. cans, 10-12c, some 13-15c per lb.; 10-lb. pails, 13-16c per lb.; bulk comb, 10-lb. pails, 15-17c per lb.; smaller sizes in proportion. Beeswax, 30c per lb.

PLAINS AREA—Cold, cloudy weather kept bees from working much on dandelion and fruit bloom, and some beekeepers are feeding to supplement the small amount of honey secured at that time. Recent rains have helped clover and other honey plants in most sections. Good demand for beeswax, and sales reported at 33-34c per lb. Little honey reported sold.

EAST CENTRAL AND NORTH CENTRAL STATES—Cold, cloudy weather during the past two weeks has checked brood-rearing and prevented bees from getting much nectar from fruit bloom and dandelion. Some fruit buds killed in northern part of area. Many colonies have already had to be fed and more feeding will be necessary. Clover looks fairly well, but more rain is needed. Little honey remains unsold. Few large lot sales white clover reported at 11-12½c per lb. Beeswax has sold at 35c per lb.

NORTHEASTERN STATES—The spring is very backward. The cold weather of the past two weeks has severely checked brood-rearing, as bees could not visit cherries, dandelions, wild mustard and other plants that were in bloom. Many hives are near starvation point and shortage of stores is general. Outlook for clover crop continues good, although freezes have damaged young growth in some areas. Very few sales of honey reported.

SOUTHEASTERN STATES—Dry weather appears general throughout the section except in parts of Florida. In south Georgia, where it is critically dry, this has resulted in a half crop from tupelo and gallberry, although a fair crop was secured from the tulip trees. The gallberry and palmetto flow in Florida is reported affected by too much wind and cold. Many palmetto buds were killed by frost. A light orange flow is still on, with average orange yield reported as about 25 lbs. per colony. Louisiana reports colonies in fair shape with a little nectar coming in. Many beekeepers are not extracting, thinking the honey will be needed by the bees. Vegetation is suffering from the long drouth. The early honey flow in Alabama has been good this year. Sweet clover is just beginning to bloom, but needs rain if the crop is not to be short. Some Hubam is in bloom, but the growth is stunted. Conditions for package bees and queens have been ideal this year and breeders have done a large business. The new crop honey is moving unusually well. White honey in 60-lb. cans is offered at 15c per lb., large lots 12½c; light amber, 12½c and 10c per lb. Small pails of light amber orange quoted at 12½c per lb. Fancy tupelo in bbls. quoted at 12-15c per lb.; light amber, 12½c; amber, 9c per lb. Some old crop amber in barrels sold at 7c per lb. Fancy comb is quoted at $5.00 per case; No. 1, $4.50 per case. Best beeswax, 35c per lb.

PORTO RICO—A little honey is now being extracted of this year's crop, but yield to date is reported light. Extracted in 600-lb. barrels is bringing the beekeeper around 77c per gal.

H. C. TAYLOR, Chief of Bureau.

From Producers' Association.

The honey market situation has not changed any since our last report. There is a fair demand for honey both locally and for export, and we are hoping to be in good shape before our 1925 crop comes in. Our members generally report that their bees have wintered well, and it looks at the present time, owing to favorable spring conditions, as though we should have a full average crop.

The Ontario Honey Producers' Co-operative,
Toronto, Ont. A. G. Halstead, Gen. Mgr.

Special Foreign Quotations.

Honey—We have to report a steady market at about the values we quoted in our last report. Transactions have been at about 13c in American money. Beeswax—This has also maintained a steady market. The value works out at about 41½c per lb. Taylor & Co

Liverpool, Eng., May 6.

The A. I. Root Company's Report.

Since our last report we have purchased two cars of sweet clover extracted honey, one of 28,560 lbs. at 8½c per lb., from Colorado, and the other 31,756 lbs. at 8¾c per lb. for white and 8¼c per lb. for light amber from Montana. These prices were f. o. b. shipping points. We have purchased no comb honey during the last 30 days.

Report of Honey Producers.

Early in May we sent the following questions to actual honey producers:

1. At what price has honey been sold (if any) in large lots (carload or less) in your locality during the past month? (a) Extracted honey, per lb.? (b) Comb honey, fancy and No. 1, per case?
2. What are prices when sold to grocers in case lots? (a) Extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) Comb honey, fancy and No. 1, per case?
3. What is the retail price to consumers in your locality? (a) Extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) Comb honey, per section?
4. How is honey now moving on the market in your locality? Give answer in one word, as slow, fair or rapid.
5. How does the number of colonies in your locality that are in condition to store surplus this season compare with the number of such colonies last year? Give answer in per cent.
6. What is the condition of the colonies at present compared with normal, taking into consideration their strength, amount of stores and amount of brood? Give answer in per cent.
7. What is the condition of the honey plants at this time compared with normal? Give answer in per cent.
8. How does the early honey flow (if any) thus for compare with normal? Give answer in per cent.

The following answers were received:

State.	Reported by:	Carlot prices. Ex.	Carlot prices. Comb.	In small lots. Ex.	In small lots. Comb.	Retail prices. Ex.	Retail prices. Comb.	Move. ment.	No. Col.	Col. Con.	Plant Con.	Hon. Flow.
Ala.	J. M. Cutts	..	..	$.65	..	$.80	..	Fair	120	100	90	100
Ark.	Jas. Johnson	..	..	..	$4.80	..	..	..	100	90	110	120
B.C.	W. J. Sheppard	..	..	1.00	..	1.25	..	Fair	100	125	100	75
Cal.	L. L. Andrews	..	..	1.00	..	1.00	..	Slow	110	90	30	30
Cal.	M. H. Mendleson	..	..	..	6.50	..	.38	Slow	..	20	0	20
Cal.	M. A. Saylor	$.10	$3.60	.80	4.80	1.00	.30	Rapid	110	100	100	100
Col.	B. W. Hopper	..	..	..	..	..	..	..	100	100	100	100
Col.	J. A. Green	..	..	.75	..	.90	.15	Fair	90	100	85	100
Conn.	Allen Latham	..	..	1.00	6.50	1.25	.35	Fair	150	130	100	80
Conn.	A. W. Yates	..	..	1.00	7.50	1.30	.40	Fair	100	100	100	
Fla.	C. C. Cook	.08	..	.80	..	1.00	..	Fair	80	90	90	80
Fla.	Harry Hewitt	..	..	.80	..	1.00	..	Fair	100	100	80	75
Ga.	J. J. Wilder	.12½	4.75	.85	5.25	..	..	Fair	115	100	100	100
Ill.	C. F. Bender	..	..	..	5.50	..	.30	Slow	100	110	80	0
Ill.	A. L. Kildow	..	..	..	..	..	..	..	105	110	125	115
Ind.	Jay Smith	..	..	..	..	1.25	.35	Slow	100	100	125	
Ind.	T. C. Johnson	..	..	1.00	5.00	1.15	.28	Slow	100	100	100	
Ind.	E. S. Miller	..	..	1.00	5.75	1.25	.30	Fair	100	100	125	
Ia.	W. S. Pangburn	..	..	.75	..	.95	.28	Slow	120	105	100	120
Ia.	E. G. Brown	..	..	.75	4.50	1.00	.30	Rapid	110	110	100	
Ia.	F. Coverdale	..	..	..	..	.75	.23	Slow	125	100	100	
Kans.	J. A. Nininger	..	..	.75	5.00	.95	.25	Fair	100	95	100	
La.	E. C. Davis	.10	..	.75	5.00	1.15	.35	Fair	125	100	100	50
Me	O. B. Griffin	..	..	..	6.50	1.50	.35	Slow	90	90	80	
Md.	S. G. Crocker	..	..	1.00	5.50	.30	.33	Slow	100	100	100	125
Mass.	B. N. Gates	..	..	..	..	..	..	Fair	100	95	90	
Mich.	L. S. Griggs	..	..	.75	6.00	.90	.32	Fair	90	90	80	15
Mich.	F. Markham	..	..	.80	..	1.25	..	Slow	90	125	100	100
Mich.	I. D. Bartlett	..	..	.75	..	1.00	..	Fair	90	90	100	0
Mich.	B. F. Kindig	..	..	..	..	..	..	Slow	125	..	150	
Minn.	F. Jager	.12	..	..	..	..	..	Fair	150	200	80	100
Minn.	Chas. Blaker	..	..	..	..	..	..	..	125	125	100	
Mo.	J. M. Romberger	..	..	.80	6.00	1.10	.30	Slow	90	90	100	0
Neb.	J. H. Wagner	..	..	.65	..	.90	..	Slow	100	100	100	100
Nev.	T. V. Damon	..	..	.75	4.50	1.00	.35	Slow	100	80	80	80
N.J.	E. G. Carr	..	..	..	..	..	..	Slow	100	80	100	
N.Y.	N. L. Stevens	..	..	.80	..	.90	..	Slow	100	95	90	
N.Y.	Adams & Myers	..	..	.85	..	1.25	.30	Slow	100	100	100	100
N.Y.	F. W. Lesser	..	..	..	..	..	..	Slow	100	80	100	25
N.Y.	R. B. Willson	.11¾	4.75	.80	4.80	1.15	.33	Slow	100	100	110	
N.C.	C. L. Sams	..	..	1.00	5.00	1.25	.30	Fair	100	100	100	100
N.C.	C. S. Baumgarner	..	..	1.00	..	1.25	.35	Slow	10	0100	100	110
Ohio.	R. D. Hiatt	..	..	1.00	6.00	1.35	.35	Fair	100	100	95	95
Ohio.	F. Leininger	.12	5.00	1.00	..	..	..	Fair	100	100	98	100
Okla.	Jos. Heueisen	..	..	..	..	1.75	.35	Slow	80	60	100	50
Okla.	C. F. Stiles	..	..	.90	6.00	1.15	.35	Slow	80	95	80	
Ore.	H. A. Scullen	..	..	.80	..	1.00	.25	Fair	75	75	75	100
Pa.	D. C. Gilham	..	..	1.05	7.20	1.40	.40	Fair	95	95	95	100
Pa.	Harry Beaver	..	..	.70	..	.80	..	Slow	100	95	100	
S.C.	E. S. Prevost	..	..	..	..	1.25	.35	Fair	100	100	100	
Tenn.	J. M. Buchanan	..	..	..	..	..	..	Slow	90	90	90	100
Tenn.	G. M. Bentley	..	..	..	..	1.38	.39	Slow	95	90	100	100
Tex.	T. A. Bowden	..	..	.80	..	1.05	..	Slow	100	110	50	40
Tex.	J. N. Mayes	.11	8.40	.60	8.40	.70	..	Rapid	100	90	50	100
Utah.	M. A. Gill	..	..	..	..	.60	.25	Fair	120	110	100	110
Vt.	J. E. Crane	..	..	1.00	6.00	1.35	.35	Slow	100	90	100	75
Wash.	W. L. Cox	..	..	..	..	..	..	Rapid	100	105	100	95
Wash.	G. W. B. Saxton	.10½	..	.60	..	.70	..	Fair	100	100	80	100
W.Va.	T. K. Massie	..	..	..	..	1.20	.35	Slow	60	75	100	
Wis.	N. E. France	..	..	..	..	1.00	.23	..	105	110	95	
Wis.	E. Hassinger	..	..	.80	..	1.00	..	Slow	100	100	90	
Wis.	H. F. Wilson	.12	..	..	..	1.10	.30	Slow	..	100	95	
Wyo.	Chas. H. Ranney	..	..	..	..	..	..	Slow	85	100	100	50

Free--500 Italian Queens--Free

To beekeepers ordering sections in 1000 lots. With each order of 1000 No. 2 grade 4¼x4¼x1⅞ two-beeway sections we will give you free a pure mated Italian queen. Our prices are the lowest and quality backed by our guarantee of "perfect satisfaction or money back." This offer holds good to the first 500 orders, or until July 31, 1925. This free offer is only on the above size and grade of sections. Extra queens can be purchased for $1.00 each.

SECTIONS A bronze bee pin on apple blossom (new design) free with each purchase of the following sections in lots of 500 and 1000 (only one pin on 1000 because of cheaper rate). Expires July 31.

Grade.	Size.	Price per 500.	Price per 1000.
No. 1	4¼x4¼x1⅞ two-beeway	$5.85	$11.35
No. 1	4 x5 x1⅜ plain	5.35	10.40
No. 2	4 x5 x1⅜ plain	4.70	9.40
No. 1	4¼x4¼x1½ plain	5.35	10.40
No. 2	4¼x4¼x1½ plain	4.70	9.40

FOUNDATION With each purchase of 10 or 25 pounds of Muth's High-Quality Comb Foundation we will give you one of these wonderful bee pins. There is no advertisement on the pin and you will be mighty glad to own one, as well as being highly pleased with our quality. This free offer also expires July 31.

Size.	5-lb. boxes.	25-lb. lots.	No. sheets to lb.
Heavy brood	65c per lb.	60c per lb.	6 to 6½
Medium brood	70c per lb.	65c per lb.	7½ to 8
Thin surplus	75c per lb.	70c per lb.	27 to 29

MUTH'S SUPPLIES ARE CHEAPER IN PRICE AND OF THE HIGHEST QUALITY, BACKED BY THIS HOUSE OF 50 YEARS IN THE BEE SUPPLY BUSINESS.

The Fred W. Muth Co.

Pearl and Walnut Sts. ***Cincinnati, Ohio***

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---------- TEAR OFF HERE ----------

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The Fred W. Muth Co., Cincinnati, Ohio.

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Also send to me.....pounds of.....foundation at.....per pound with one bronze bee pin like cut free.

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Yours truly,

Name .....

Post Office .....

Shipping Point .....

IF HUMANLY POSSIBLE, YOUR ORDER WILL BE SHIPPED WITHIN 24 HOURS AFTER IT IS RECEIVED.

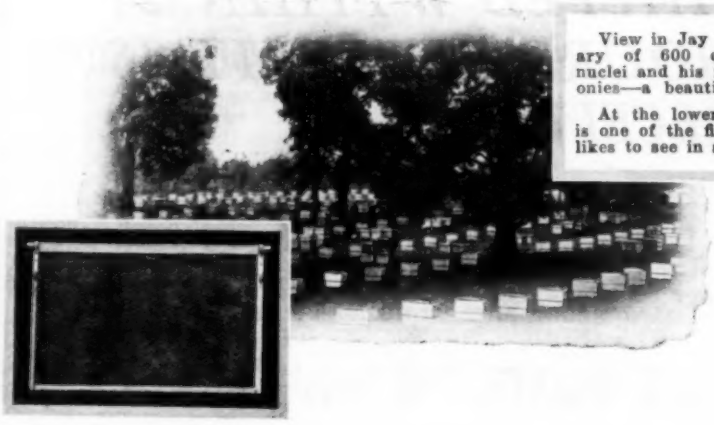
The A. I. Root Co. of Iowa

Council Bluffs, Iowa

"I Like Dadant's WIRED FOUNDATION very much indeed"—says Jay Smith

THIS is Jay—without his bee whiskers. Down in old Vincennes (Indiana), he has a model queen-rearing establishment, worth a trip to see. Worth while to know Jay. He can talk real bee-language, and his queens are known the world over. The little poem opposite gives the sentiment of Vincennes' folks for Smith.

When it comes to handlin' bees,
Wadin' in among the trees,
Where a swarm has settled down,
There's a man that lives around
These parts here, understand,
That handles them with naked hand.
He puts them in their hives again
And seldom gits a stinger in his hand,
Cause he has made them bees his specialty.
He can tell, by their buzz,
Exactly what their wishes wuz,
Knows their language, low or high,
In the hives or on the fly.
Yes, this bee-man that lives out
In the country we're talkin' 'bout
Is Jay Smith, who helps to keep
The people in this country sweet.
(by C. C. Johnson)



View in Jay Smith's Apiary of 600 queen-rearing nuclei and his finishing colonies—a beautiful scene.

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Dadant & Sons, Hamilton, Illinois

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Wired — Plain — Surplus

Sold by dealers everywhere — Write for name of nearest dealer.

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BEESWAX—We pay 33c cash, 35c in trade f. o. b. Hamilton, Illinois, or Keokuk, Iowa, for your wax. Send it now before the moths get it!

GLEANINGS IN BEE CULTURE

JUNE, 1925

EDITORIAL

OUR CORNERSTONE

REMEMBER at all times that improved bee culture is our end and aim, and we trust no one will hesitate to give any facts from experience because they may tend to overthrow any particular person or "hobby." If any of our special plans don't work, or if anything we advertise has had its value overestimated, here in these pages is the place of all others to set the error right.—From A. I. Root's "introductory" in the first issue of Gleanings in Bee Culture January 1, 1873.

J. E. Crane, one of the few remaining pioneers in commercial beekeeping, celebrated his 85th birthday on May 16, in his quiet home among the green hills of Vermont. It is regrettable that mention of this was not made in the May issue, so that his many friends and admirers among the readers of this journal could have sent letters of greeting, but it is not yet too late for this.

A Venerable Correspondent

Mr. Crane began beekeeping in the days of the box hive and has therefore witnessed the great developments in this industry since the invention of the movable-frame hive. His association with Gleanings in Bee Culture as correspondent began with Volume I (1873), since which time he has contributed numerous valuable articles, thus rounding out a remarkable career of 52 years of service to our readers. In 1906 he began his paragraph writing under the heading "Fancies and Fallacies," which title was changed two years later to "Siftings," the present heading for this department.

A SERIOUS hindrance to increasing the demand for comb honey is the dumping of large quantities of cull comb honey on the market. This usually occurs after the marketable grades have been disposed of, then it stands in the way of sales when the new crop is ready. The dealer who buys only one or two cases at a time considers that he is stocked with comb honey as long as a few sections of unsalable honey are left on his hands, and is not interested in offers of really salable honey. One of the penalties of comb-honey production is the inevitable accumulation of culls which in poor seasons are entirely too numerous. However, their number can be greatly reduced by careful management. When conditions are not favorable for comb-honey production, extracting-combs should be given and the honey taken in the extracted form. It is often better to melt up or extract inferior comb honey instead of easing it up and sending it to an unwilling market where it retards sales of good honey.

Dumping Cull Comb Honey

SINCE the publication of M. A. Gill's article on comb-honey production in the May issue, many inquiries have been received in regard to dispensing with bottom starters. Under some conditions comb honey produced in sections having a bottom starter about one-half inch wide and a large sheet attached to the top, leaving a space between of about one-eighth to three-sixteenths of an inch, is not only better in appearance but stands up in shipment better than any other arrangement. Under other conditions, especially when the honey flow is rapid, the sections will be as well filled and the comb as firmly attached when a single sheet is used, filling the section completely except about one-thirty-second of an inch for clearance on each side and about one-eighth of an inch at the bottom. The space at the bottom should be such that the stretching and expansion of the foundation on being drawn out will bring it down to touch the bottom of the section, when it will be promptly attached. If too much space is left at the bottom the bees are inclined to cut away the foundation and not attach the comb well at the bottom. Bottom starters are used chiefly in the West where the character of the honey flow and possibly cool nights make their use desirable. In the East, as a rule, there is but little if any advantage in bottom starters during normal seasons.

Advantages of Bottom Starters

MANY reports reaching this office indicate that brood-rearing was badly checked during the first three weeks in May by cool weather. This is unfortunate indeed, especially if clover yields well in June, since the reduction in brood-rearing in May has reduced proportionately the number of field workers that will be available in June. However, colonies which were abundantly supplied with stores have held up in brood-rearing remarkably well. The exceptions to this are cases in which the colonies ran out of pollen at a time when the weather was too cool for them to gather more from the field.

Effect of Cold Weather Upon Brood-rearing

In The A. I. Root Company's apiaries, in which a number of experiments are constantly under way in order that the results may be given to the readers of Gleanings in Bee Culture, there are something like 500 colonies supplied with food-chamber, either full-depth standard hive bodies or shallow extracting supers. These food-chambers were filled with white clover honey last season, the colonies thus being supplied with 40 to 50 pounds or more of stores last fall. These colonies used but little of their stores during the winter, and having this great abundance during the spring they have gone ahead with brood-rearing almost as rapidly as though the weather had been quite favorable. During the latter part of April a third story containing old dark combs was added, which apparently greatly stimulated brood-rearing, so that by the middle of May the colonies had brood in 12 to 15 combs in spite of the cold weather and lack of incoming nectar and pollen. Of course, these colonies could not have done this even with a large supply of honey if they had not had plenty of pollen. It is surprising what a strong colony can do in brood-rearing if it has a great abundance of honey and pollen, together with plenty of room for the queen to spread herself in egg-laying.

AS predicted in these columns last month, there has been considerable early swarming in the northern states, some being reported even in Ontario. Swarms came out when the weather was too cold for bees to gather much nectar, and when they would starve within a few days unless fed or returned to their hives.

Early Swarming in the North

Under conditions prevailing here in Medina, this early swarming was easily prevented by giving a third story of dark combs, this being placed between the brood-chamber and the food-chamber. This was much more effective in preventing swarming as well as in stimulating brood-rearing in this locality this season than large single brood-chambers. Of the thousand or more colonies which were given a second story of dark combs the latter part of April or early in May, not one made any preparations for swarming, while of the few dozen colonies in large brood-chambers a large percentage built queen-cells preparatory to swarming, and several sent out swarms early in May. Apparently raising up the food-chamber and placing a set of dark combs between it and the brood-chamber brings about a stimulation to brood-rearing and the elimination of swarming that is difficult to bring about by a single large brood-chamber where the expansion of brood-rearing must be laterally from comb to comb.

THOSE who provide in advance for an abundance of young laying queens at swarming time, as described by Morley Pettit in our last issue, are well equipped to handle the swarming problem without serious loss. By a little forethought and extra effort these young queens will be ready when needed during the swarming season. To be able to go to a nucleus and take out a young laying queen whenever needed during the swarming season is certainly worth a great deal of extra effort in rearing them, for it often happens that a colony starting to supersede its queen or a colony building queen-cells in preparation for swarming can be brought back to normal storing condition within a short time by means of a young laying queen, thus increasing the yield from such colonies out of all proportion to the effort required in bringing about the better conditions for storing. Those who think they are not operating on a sufficiently extensive scale to justify the adoption of some such system as outlined by Mr. Pettit for providing these queens, should note that the plan as he outlines can be adapted even to a few colonies. The Editor believes that even those who have only a few colonies should learn to rear queens by the grafting method. Those who do not care to do this can often save naturally built queen-cells from good stock built by colonies preparing to swarm or supersede their queen. Such cells, if from good stock, should result in queens just as good as those reared by the grafting method. The

Value of Young Laying Queens at Swarming Time

important thing in utilizing such queen-cells is not to be tempted to use those found in colonies of inferior stock. A good way to improve one's stock is to purchase a number of untested queens from a reputable breeder and introduce them into nuclei where they will be ready to take out when needed during the swarming season.

Queens Better Some Seasons Than Others

IN his article in this issue, Allen Latham mentions the well-known fact that not all queens from the same mother are of equal value. Whether this difference exists at the time the egg is laid or is a result of environment during the period of development is not always clear, although it is well known that queens may be good or poor according to the manner in which they are reared. Most beekeepers have noticed that when their colonies are requeened through the natural processes of supersedure and swarming, better queens are reared some seasons than others. The question as to whether colonies should be requeened annually by the beekeeper, or every two years, can not be answered arbitrarily without taking into consideration this fact as well as the many conditions which affect the amount of work the queen does during the season. In some localities the queens reared last season are unusually fine and vigorous. In these localities it is quite possible that queens reared this year will not measure up to those produced last season. In such cases it would not be wise to kill all of the one-year-old queens simply because they are a year old and replace them with queens that may not be as good. In other localities the queens reared last year may be below the average, while those reared this season may be above. In such cases it is not difficult to decide whether to requeen or not.

Prevention and Control of Swarming

PRODUCERS of extracted honey who give a super of dark combs between the brood-chamber and the food-chamber (provided the colony is strong) the latter part of April or early in May, thus making the hive three stories high, then three or four weeks later put the queen back into the original brood chamber, confining her there by means of an excluder, and place a super of empty combs between the brood-chamber and the former second story have gone a long way toward the prevention of swarming. The super of dark combs acts as a stimulus to brood-rearing, the queen usually going up and beginning work in these combs within a few days. Later, after the queen has partially abandoned the lower story and most of the brood in that chamber has emerged, it is ready for the re-establishment of the brood-nest there, thus for the second time giving the queen a set of empty or nearly empty combs and furnishing more room than she can possibly occupy with brood.

Since the advent of non-sagging foundation the queen does not so readily abandon the lower story while working in the second on account of the combs' having worker cells to the top-bars in the lower chamber. If there is much brood in the lower story, better results may be obtained by moving some of it to the upper story and filling its place with empty comb at the time of putting the queen down. In this way the queen must establish a new brood-nest below, thus bringing about conditions like those in the Demaree plan by which the queen is put into a new brood-chamber filled with empty combs, the original brood-chamber being placed above the excluder. Colonies managed in this way often go through the season without a thought of swarming, especially if weather conditions are such that the field bees are not confined to the hives by a lack of nectar secretion or by too many rainy days during the honey flow.

Unfortunately, in comb-honey production this plan can not so well be carried out, since it is necessary to reduce the hive to a single story at the time of giving the comb-honey supers at the beginning of the main honey flow. If the chamber containing the most brood were taken away when the comb-honey supers are given, conditions would be somewhat comparable to hiving a swarm on empty combs, resulting in bees' confining their attention largely to the combs and neglecting the supers. When the chamber containing the least brood is taken away the bees are compelled to begin work in the sections promptly; but at the same time they are in condition to swarm unless the colony expands rapidly into two or three supers. As a rule, it seems best to leave most of the brood with the colony and take chances on bringing about swarming by reducing the hive to a single story which contains most of the brood and adding the comb-honey supers, athough it is sometimes better to take away most of the brood at the time of reducing to one story and arrange to return the emerging bees from the removed brood-chamber to the original colony as soon as they are old enough to be useful to the colony.

WHAT ABOUT COMB HONEY?

By Morley Pettit

Are Beekeepers in Regions Adapted to Comb-Honey Production Missing an Opportunity?

Last evening when I came in for dinner there was a treat in store for me — a section of "real Georgia comb honey." It had been purchased in one of the best stores of this bright little city of Fitzgerald in south central Georgia, and cost 33 cents—not such a bad price for first class comb honey; but look at it! The wood and comb were weathered and stained, with every appearance of having been in the hive all winter. The honey was dark and strong. I have been told that at some seasons Georgia produces some of the finest honey in the world, but this section had very evidently been produced out of season some time during 1924. The farmer had finally felt the urge for a little money and remembered that super of sections. I do not blame him for realizing on it, nor do I wish to cast reflections on this particular state, as the incident could probably be duplicated in every state in the union and every province in Canada.

But what is the industry coming to when finest extracted honey is a drug on the market and such stuff in comb finds sale in first-class stores? Is it not written so plainly that even we who are running far to extracted honey may read? We must yield to the popular demand for some form of honey in the comb.

When Comb Honey Was Produced in Ontario

When I was serving my apprenticeship one of the winter tasks, and a very pleasant one at that, was to resort to the little old shop over the bee cellar, fill up the stove with dry beech and maple and fix up the section-supers for the following summer. They and the separators and the T tins had to be scraped clean of propolis. Then the sections had to be put together, the foundation fastened in with a hot-plate machine, and the supers filled, piled, and covered with papers to exclude dust while they waited for the summer. We used four-piece sections made of whitewood, first by Dr. Tinker, then by a Canadian firm. They were the very best that could be had and cost $4.00 per thousand. Mr. Crane's interesting article in April Gleanings brings the whole scene back to me. Like him, we always preferred this style because of its firmness and the fact that the harder wood could be scraped cleaner than basswood, which is necessary for the folding section.

In May we gave each colony a super of extracting combs as needed. The idea of letting the queen up came later. Anxiously the advent of the first white clover blossom was awaited and then all spring honey was extracted from the supers, and sections were given to the strongest and best colonies. I say strongest and best, because colonies which made white cappings were marked the previous season and were given the preference in putting on sections. By the time the prescribed ten days for the commencement of the clover flow had elapsed everything was in readiness, and the bees, having learned to go up into extracting combs, went into sections more readily. There was only the home yard then, and watching for swarms would be the order of the day for the following weeks, together with hiving them and extracting and putting on section-supers.

How Swarming Colonies Were Managed

Practically all the comb-honey colonies would swarm early. These swarms were hived on the old stand and given the sections to finish. The parent hive remained near by for five days, and was then moved to another part of the yard to requeen itself and get ready for winter. The prime swarms from colonies run for extracted honey also received comb honey supers, and it was one of the joys of early beekeeping to see the eagerness with which they built and filled sections usually, though not always. Sometimes they would sulk and ask for combs. Somehow one particular case stands out in memory. When I found they refused the sections, I gave them a super of very deep combs, and in about a week they had stored nearly a hundred pounds in it.

In the brood-chambers prepared for swarms intended for sections we did not use combs or even foundation, but starters only, and very narrow ones at that. Moreover, the brood-chamber space was reduced to about two-thirds its natural size by dummies made of boards. This caused the swarm to throw its whole working force into the sections instead of building up a nice brood-chamber first, as it would do with full sheets of foundation. We had no fall honey flow and did not wish to make increase. We simply wanted to use the swarm up in finishing as many sections as possible. The contracted brood-chamber with only starters resulted in the rearing of some drones and a few "ugly combs," but it accomplished our purpose and produced fancy sections which took prizes year after year at the Toronto Exhibition. When the sections came off at the end of the honey flow, these worn-out swarms,

which also had the old queens, were sometimes shaken out into shipping cages and sent by express to a customer in the buckwheat region, or else killed.

Out-apiaries and High Grading Standards Kill Comb Honey

When I started beekeeping on my own account, expansion called for out-apiaries and swarm control. My definite decision that something had to be done dates back to one very hot Sunday when the bees started swarming about seven in the morning and kept it up most of the day. My best helper along the road to swarm control was L. Stackelhausen, whose very valuable articles had appeared in Gleanings. As I am quite a few hundred miles from my library while writing this, I shall have to ask the Editor to supply references*. Demuth tells me that with my improved methods of winter and spring management I would not have so much swarming with comb honey now, but it was the exception rather than the rule for any colony to work sections without swarming.

The Canadian standards of finish for comb honey are very high, and for that I blame competition at exhibitions, particularly the Canadian National Exhibition held annually at Toronto. There is no doubt that this is the greatest annual exhibition in the world, but it has been a factor in killing comb-honey production in Ontario. When a judge is confronted with two sections of honey which are equally beautiful his last resort is to count the unsealed cells around the edge and give the prize to the most completely capped section. This sets a standard for fancy sections. When most of us in Ontario gave up comb-honey production, sections which were not completely sealed to the wood graded from seconds down to culls. To get the fancy and number one sections we had to crowd our bees until they were sure to swarm once, and until we lost too big a percentage of the crop. I think this explains our ruling which some Americans have exclaimed about, that in taking a crop estimate a pound of comb honey is counted as two pounds of extracted honey.

Comb-honey Production a Lost Art in Ontario

At any rate, comb-honey production in Ontario is practically a lost art. Every beekeeper is asked from time to time, "Haven't you any honey in the comb? I always like it in the comb. No, I don't care much for strained honey, I always like it in the comb." My mental reply, unexpressed, of course, has generally been, "Yes, but I'll bet you wouldn't want to pay for it in proportion to what it costs us."

*Gleanings in Bee Culture, 1900 to 1905.—Editor.

Still, as the price of extracted honey goes down and our methods of management improve, and especially if customers will accept a slightly lower standard of finish, comparable with that set in the United States, it may be a different matter. Latest advices indicate that Colorado grading rules are acceptable in Canada outside the close influence of the Toronto Exhibition. Beekeepers in the clover region have a great advantage over those in alfalfa districts, because of the quick, sharp flow of clover honey and the fact that it does not granulate in the comb so readily as does alfalfa honey.

In the latter respect some of the southern districts producing clear honey of good flavor, which does not granulate for months if at all, are particularly adapted to producing comb honey. They are doing it, too, and this year were shipping sections to a limited extent in early April. The form which is growing rapidly in popularity is bulk comb honey—various kinds of glass or tin containers packed with pieces of comb honey cut from frames, and then filled up with extracted honey of the same variety.

At first thought the idea is almost repulsive, as it seems so mussy to one who is not accustomed to it. On the contrary, when nicely put up in glass it is very attractive. I have never seen it in tin yet, but one beekeeper told me recently he had an order for a carload in five-pound tins, to be delivered as soon as he could get it packed. They are putting up this sort of honey all through the South, and also in Wisconsin and Iowa. But I do not believe many districts have the requirement for producing first-class section honey—the heavy flow of light honey in hot weather—that we have in Ontario and similar regions. With the honey market drifting in the direction it is going—a slow sale for extracted and a keen demand for comb—it looks as though we were missing an opportunity.

Package Bees for Comb Honey

I am not in the habit of publishing ideas before testing them out, but here is one which has been turning over in my mind for weeks. Would it be profitable to fit the old-fashioned comb-honey system in with package bees? I am not prepared to discontinue all northern wintering, because I know how to put away seven hundred colonies (or whatever the number is) and be pretty sure of ninety per cent of good colonies for the next season's crop. I also know that I can take a certain number of packages and, provided they are safely hived in good time, feel fairly sure of about as good an average crop from them as from the wintered-over colonies. But somehow the distance from Ontario to a southern ship-

ping place and back seems greater than the length of an Ontario winter, counting the distance in things that can happen to prevent having my quota of colonies ready by the time the honey flow comes.

If I were going to use package bees in connection with comb-honey production, I think I would try to bring about the reduction of colonies to normal wintering at the end of the season by using the old contracted brood-chamber with starters and dummies. Then use the young southern queens which have been partially resting to requeen extracting colonies which have worn out their queens raising young bees for fall and winter.

Georgetown, Ontario.

BEST CONDITIONS FOR CELL-BUILDING

By Allen Latham

How Quality of Queens is Affected by Attention to Many Details in Their Rearing

The first article of this series dealt with the selection of the queen-mother, the second one with cell-cups for grafting, and the present one will deal with the problem of getting bees into the right condition to accept grafted cups and the problem of keeping them in that spirit until the cells are completed.

Just as the mammal mother comes into a proper condition to furnish milk for her young, so the nurse bee under right stimili develops the power to secrete or manufacture a food equal to and in many ways superior to milk. For one thing, it will not spoil as does milk, and its power to produce growth greatly excels that of milk. This food, given to the larvae frequently and in ample quantity, is the secret of excellent queens, certain other conditions being favorable. It is highly essential, therefore, that the bees of the colony under whose care these larvae are placed should be in this milk-producing state several days before the eggs are laid which produce the larvae, and continue in that state until the larvae are full grown.

Influence of Nectar and Pollen

Unless nectar is coming in freely, not only the colony of the queen-mother must be fed, but the colony which is to care for the grafted cell cups. They should be fed in sufficient amount to bring about a feeling of prosperity to these colonies. It is also absolutely necessary that the two colonies be well supplied with pollen.

The average beekeeper probably is unaware of the vast amount of pollen consumed by bees. Every queen-breeder is sadly aware of that fact at times, for he has many poor batches of cells just because of pollen deficiency. There are times when he can not graft with any confidence of success, a cold storm housing the bees so closely that all accessible pollen is consumed. The queen-breeder at such a time must give up his grafting unless he has a store of pollen in reserve in the shape of brood combs stocked with preserved pollen. If he has such he can, by uncapping and giving these combs, attain a very fair result.

Well-fed Breeding Queen Produces Eggs Superior in Vitality and Size

The food given queens is the stimulus which brings on laying. When bees do not feed the queen she stops laying. When they are stimulated by a nectar flow they begin to produce chyle, or milk; and, this being fed to the queen, she at once develops a period of laying. It may be that all the eggs of a queen are equal in vitality, but it seems reasonable to assume that a well-fed queen is more likely to produce eggs superior in vitality and size. I know for a fact that eggs from the same queen do not always develop the same grade of queens. I can account for this in two ways only. Either the colony condition is not such as to bring about larvae suitable for grafting, or else the condition of the queen herself is responsible. It is possible that after several days of strenuous laying a queen may begin to lay eggs of inferior vitality. Domestic animals offer an example of this, and why should the same thing not be true of bees? Whatever the fact in the case, the queen-breeder will do well not to use larvae which come from eggs laid under unfavorable conditions either of the queen or the colony possessing that queen.

Feeding the Cell-building Colonies

The reason for feeding the colony which is to nourish the grafted larvae some time before they are given the cups is to bring about a fat condition of the nurse bees—that is, get as many bees as possible into the chyle-producing state. When the grafted cups are given to a colony, that colony must have thousands of nurse-bees which are actually in distress similar to that of a high-production cow which has not been milked, though milking time has come and gone.

Most beekeepers, in feeding, are very likely to err in giving feed that is too thick. If the purpose of feeding is simply the storage of food, such thick syrup

is all right; but when the purpose is to stimulate brood-rearing and to aid in queen-rearing, thick feed is apt to do as much harm as it does good. The thinner the feed the better, if it is not too thin for the bees to take readily. Water that is not much more than sweetened is far better than thick syrup. One part of sugar to two parts of water produces excellent results. A colony fed this very

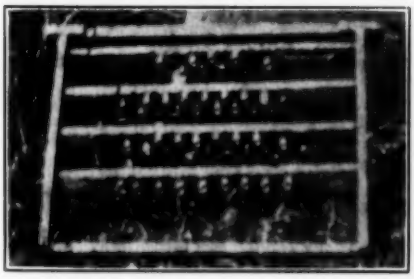
Front of hive overrun with nervous bees after having been prepared to receive grafted cell-cups.

thin syrup at once begins to ripen and invert it, and by so doing generates much heat. The entire colony warms up and all the younger bees are clogged with the syrup. The hive is in an uproar. Chyle production begins and is very ample. Wax production is very slight. Thick feed brings on very slight chyle production, but does stimulate wax production.

The last statement may be taken with some incredulity. I must confess that I never stumbled upon this fact until I had kept bees for nearly two score of years. I have found it of great value. There is one gain alone in the use of thin syrup which would make its use valuable even though it did not bring a greater insurance of good queens. When thick syrup is fed the bees will build comb all round the queen-cells. When the queen-breeder takes out a batch of mature cells he finds them all fastened together and many of them completely submerged in comb, and frequently surrounded with cells of syrup. Aside from the nuisance of cutting these cells apart, there is the added anxiety lest the inmates have been injured by that comb and syrup burial. On the other hand, when thin, watery syrup is fed, the cells, in most cases, will be individually distinct, and each can be cut or removed without disturbing others. At the most they are rarely more than attached to one another by a band of wax.

The feeding of the colony caring for the cups must be kept up until the cells are sealed. It may then stop if the weather is warm. But if there comes a cold spell or a long cold storm, it is well to feed in order that the colony may be more certain of keeping up the proper temperature throughout the hive so that no cells will be liable to be chilled. Negligence of this sort may result in many of the emerging virgins being late and of dark color.

If the bees of the cell-building colony are numerous, say 50,000, then two quarts of feed should be given daily. A colony still larger may take three or four quarts of this thin syrup. Care must be used that the quantity given may not be excessive. If it is excessive the bees may in their zeal to care for the syrup neglect to develop all the cells. Only actual experience can guide one in this matter,



Frame containing 49 cell-cups ready to give to the prepared colony.

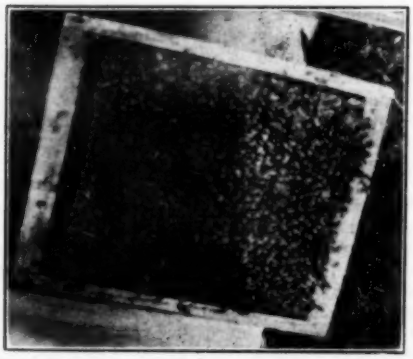
and the expert himself can not be sure that he is feeding the very best amount. By noting results and bee-behavior he can generally get a good average result.

Preparing Colony for Accepting Grafted Cells

I make use of a system perhaps entirely different than that used by any one else in preparing the colony for receiving the grafted cups. I have tried all the methods written up for years back, and for an entire season made use of the swarm-box method developed by Swarthmore (E. L. Pratt). I never came to like this method, and could not see that it had any distinct advantages which warranted its use, for its disadvantages were quite marked. It seemed that the advantages of this swarm-box procedure could be gained in a more simple manner and the disadvantages of the method more or less eliminated.

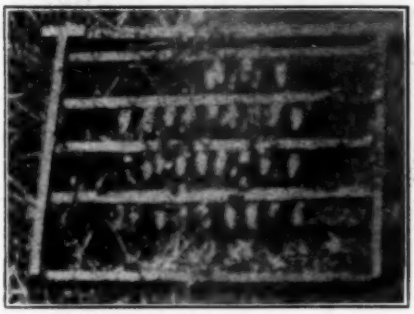
Instead of using the swarm-box method I select a strong colony (the stronger the better) and remove the queen, with one or two frames of brood, giving these to

other colonies where needed. This queenless colony is then fed for two to three days. By that time there are thousands of nurse-bees rapidly producing chyle and eagerly working over started queen-cells. On the third day, or sometimes the fourth, all the brood is removed from the colony except combs of sealed and emerging brood. No brood is left that is unsealed, except one comb which may have a dozen or so of eggs and young larvae. Sometimes no unsealed brood at all is left. Between a full comb of sealed brood and one rich in pollen is set a frame carrying three or four bars with cups attached. The number of cups will run from 25 to 75, according to the strength of the colony. This operation is usually done about 10 o'clock. For the next five hours that colony will be in a state of great uneasiness. The front wall of the hive will be overrun with nervous bees. Inside, the nurse bees will be searching everywhere for a place to deposit their chyle. (If there happens to be a patch of young drone brood, these poor, unfortunate baby drones will be fed to their death.) There will be much activity about the cups on the bars. Most or all of these cups will be transformed, a shortening in length will come about, and the cup will acquire a diminished mouth.



View of tops of frames just after inserting frame of grafted cell-cups. The arrow shows where bees are crowding up and heading toward the frame of cups.

Some five hours later, or soon after 3 o'clock, the frame of cups is removed. The comb containing any young larvae, if such has been left in, is also removed. The colony is now hopelessly queenless, and even the empty queen-cups have been taken away. By the time I have grafted those cups and returned them to this colony it is in a receptive mood, if such a thing is possible. Getting bees crazily anxious to rear queens is nearly half the battle.



Same frame illustrated on previous page after cells have been completed. Three cells were not accepted by the bees, three were used for royal jelly, leaving 43 ripe cells.

In the fourth article the method of grafting will be described, and the matter of proper larvae will be discussed, and, space permitting, the normal development of a queen-cell will be considered.

Norwichtown, Conn.

SUMMER WORK IN THE APIARY

By J. E. Crane

Some Hints on the Production, Harvesting, and Care of the Honey Crop

With June our summer work begins, such as checking swarming by removing queen-cells, queens or brood, as the condition of each hive seems to require; raising up partly filled supers and inserting an empty one under them or placing the empty one on top, as the case may be, so the colony will have ample room.

If the season is good and nectar plentiful, we may find now and then a super full or nearly finished early in July, which we can remove. If there are any unfinished sections they must be sorted out and a super or supers filled with them to be placed on some colony that can finish them.

Getting Bees Out of the Supers

When honey is coming in freely we set the supers beside the hive (in such a way that the sun will not melt the combs) for the bees to run out. But if nectar is scarce in the fields we must be careful or robbing will get started, especially near the close of the season.

We, at an earlier day in beekeeping,

used to drive our bees out of sections partly by smoke and place them in large boxes, then cover the boxes with a sheet of white cotton cloth; and as the bees came out of the supers up on to the sheet turn the sheet very quickly so no robbers could get in. Now we use the bee-escape —a flat board with a Porter escape near the center. These work very well if one can give them time enough, but it often takes several days for all the bees to leave the supers. I have made an escape-board with four small cone-shaped escapes in it, that I like very much.

Bees Brought in With the Honey

When taking off honey in quantity bees are apt to accumulate on the window or screen of the honey-house, sometimes in large numbers. If a bee-escape is put on the window, the bees will soon go out, only to perish outside if they have been brought in from an out-yard.

A better way is to brush them down into a hive or box, feed them well, and in a day or two give them just at night to some weak colony that may need them. If you have any old combs on hand you may give them a set and a queen, and you have a new colony for next year.

Scraping, Grading, and Packing Comb Honey

After getting the honey off and in the storeroom, the next thing to do is to clean the sections of propolis, weigh each of them, and pack them in cases ready for market.

Somewhere I have seen a picture of a man standing up while cleaning sections. This is a great waste of energy, it seems to me. It is better to sit in a comfortable chair with the bench coming just above the knees to work on. This does not tire one half as quickly as to work standing.

Cartons for Comb Honey

Shall we use cartons? That will depend somewhat on the market. I confess I have a liking for them. It gives an opportunity to advertise cheaply to just those who are fond of honey. If a comb breaks down on its way to market it keeps it from falling against an adjoining one. If we visit a grocery store we find most of their goods in boxes or cartons. Even smoked bacon is put into attractive little boxes and a generous price asked for it. If you have a weakness for cheating, you should not use cartons, for the temptation to cover up a poor or off-grade section is often present.

Foundation for Next Year's Honey Crop

So far I have spoken of securing section honey and getting it ready for market. This will take much of our time, but there is other work that claims attention. The foundation for our next year's crop is often laid in the present year's management.

After sections are removed we must be sure every colony has a good queen or the necessary brood to rear one; also honey enough to stimulate the rearing of an abundance of brood for wintering.

I would not say that all one-year-old queens should be removed, for many of them are good for two years, and some even three seasons. Our summers are so short that queens do not wear out as fast as they do farther south.

Breeding from Best Producers

Great care should be taken to discover the most productive colonies, for there is a great difference in the productiveness of different colonies of equal strength. The young queens should then be reared from these most productive colonies. I believe every one having from fifty to one hundred colonies should have some arrangement for the artificial rearing of queens, or at least for the emerging and care of virgin queens from cells removed from the best colonies.

Some one has said that beekeeping is the poetry of rural life and I feel quite sure that the rearing of queens is the most interesting and charming part of keeping bees.

How to Prevent Robbing

One of the objections to opening hives and looking up queens in hot weather after the clover has gone by is the danger of robbing, and I confess I have many times found it a serious matter; but with a small atomizer and a little carbolic acid for spraying the front of a hive before opening it, there need be but little trouble from robbing. This is a case where an ounce of prevention is worth a pound of cure. I have tested it under the most trying conditions and found it to work with entire satisfaction.

Watching for the Brood Diseases

During the summer, when the hives are full of brood, is a good time to look for the brood diseases, and weed them out if found. I believe that every one who keeps bees should be an inspector of his own bees. It requires no commission from the state and he can hold the office as long as he lives. It will pay him well, too; indeed, it may prove to be the most profitable of all his summer work.

Middlebury, Vt.

[In addition to being inspector of his own bees, every beekeeper should be interested in the eradication of the brood diseases from his neighborhood. A little missionary work among neighboring beekeepers, or, better still, the organization of a local beekeepers' association for the purpose of locating and eradicating disease, should soon result in cleaning up the locality.—Editor.]

COLONY POPULATION and HONEY CROPS

By W. J. Nolan

Associate Apiculturist, Bureau of Entomology, U. S. Department of Agriculture

Why Strongest Colonies do not Always Yield Largest Amount of Surplus Honey

Part I

Colony population, other things being equal, is the most vital factor in getting a honey crop. Regardless of manipulations on the part of the beekeeper, no surplus honey will be stored by any colony which does not have sufficient bees to gather it when available. For this reason the successful beekeeper bends his efforts towards having each colony keep strong enough in any particular period of the year to enable it to attain its largest force at the right time for reaping the fullest advantage from the main honey flow.

Since the queen and drones function only in reproduction, the quantity of workers present in a colony necessarily becomes of great importance because they carry on all the other colony activities. The mere number of worker bees is in itself, however, no index as to how well a colony will perform any individual activity. For instance, a colony composed of newly emerged bees will not gather as much nectar as a colony with an equal number of bees two or three weeks of age, other conditions being the same. In wintering, likewise, mere numbers are not the most essential factor, because young bees will winter better than an identical number of older bees under similar conditions. Further examples might be given.

Proportion of Field Bees and Hive Workers

Whether nectar-gathering, wintering, or any other seasonal activity is to be accomplished to the best advantage of the colony depends entirely on whether the ratio between the hive bees and the field bees varies at just the right time to insure the correct proportion of bees of the proper age to carry out the activity efficiently. Swarming well illustrates If, for example, before or during the how easily this ratio may be disturbed. main honey flow the number of field bees becomes such that some manipulation by the beekeeper, or some natural cause like weather, throws so large a proportion out of work at any one time as to cause a congestion within the hive, a swarming impulse seems to be the result. If, on the other hand, it happens on any occasion during the honey flow that there are so many hive bees in excess of those needed for hive duties as to cause a congestion within the hive, swarming may likewise be expected. The key to the successful accomplishment of any activity by a given colony population, therefore, lies in the division of labor among worker bees, according to age, into hive duties and field duties. Such being the case, to have sufficient new worker bees at the proper time is the primary object of the beekeeper in his every manipulation of a colony if he is to obtain a maximum honey crop.

The population of a colony during any year is composed of (1) bees which have wintered over, (2) bees reared during the year, or (3) bees of both classes. Since the duration of a worker's life is limited by the energy which it expends, a worker which has wintered over can form a part of the colony population for only a relatively short time at the beginning of the active season. This is more evident when it is borne in mind that in the busy period of the active season the average length of life of the worker bee is about six weeks. Hence, by far the larger portion of the total number of the workers in a colony throughout an active season must be reared during that current year.

In a colony which has wintered under ideal conditions the population will show only a slight diminution during the first days of the active season before any new brood emerges, because most of the bees will have entered and passed through the winter under such conditions as to have caused only a minimum loss of energy. On the other hand, in a colony which enters winter with a large proportion of old bees, or which, owing to other improper wintering conditions, is compelled to expend much energy in heat production, the resulting high death rate among the bees which winter over will cause a large daily loss in population at the beginning of the active season. This is commonly called "spring dwindling."

Under conditions favorable for brood-rearing in early spring, however, the rate of emergence after once overtaking the death rate will gain so rapidly on it, until brood-rearing activity is in some way checked, as to result in a strikingly large increase in population in a relatively short time. During the remainder of the season the population is subject to constant fluctuations due to two factors. In the first place, the average length of life of the worker bee reared during the active season, excepting those workers which are to winter over, is only a few weeks. In the second place, the rate of increase in population, in other words the rate of emergence, changes greatly from time to time as the result of the effect of

seasonal factors on brood-rearing activity. Since these factors vary both in time and intensity in different localities, the actual course of colony population throughout an active season in two different regions will vary accordingly.

Surplus Not Always Proportional to Strength of Colony

At the beginning of this article it was stated that colony population, other things being equal, is the most vital factor in honey production. This can not be taken to mean that, in comparing honey yields in different localities, the colony with the highest seasonal production has had the largest colony population. The phrase, "other things being equal," includes not only factors within the control of the beekeeper but those outside his control as well. In the latter class belong nectar secretion, the number of days on which nectar is available, and the like. Such factors are scarcely ever similar in two different localities during any one year. Hence a large colony population in certain localities with exceedingly short nectar flows may show less of a total surplus than a colony with a smaller population in a region with a relatively long nectar flow.

It is possible that colony population may be greater naturally in regions of mediocre honey flows than in regions of intense honey flows, because the smaller quantity of honey coming in at any one time does not tend so much to restrict the area available to the queen for her operations. Bees in using cells to store honey show little regard to the needs of the queen. She must keep active if she is to find vacant cells within the brood-nest. It may well be, then, that in regions of good honey flows even the most prolific queen never attains her maximum possible egg-laying rate, due to the fact that her field force at the time of the honey flow may reach the stage where it can bring in nectar fast enough to check some of her activity by cutting down the number of cells available for her within the brood area proper.

It is quite evident that, while the beekeeper is dependent primarily upon the colony population for his honey crop, the size of the crop is dependent in turn upon how many times each worker bee making up that population can return loaded with nectar. That there is a wide variation between localities as to the number of loads of nectar available during any one season becomes quite plain when it is remembered that certain regions have two main nectar flows, one in summer and one in fall, either of which yields more honey than is obtained in some regions characterized by having only one scanty main nectar flow a year. Even within regions of only one principal honey flow there is a wide variation as to the time during which nectar is available. The tulip-tree nectar flow, for example, has been stated to last for two weeks, but in actual experience, owing to rains, frosts, and the like, it too often lasts only a week or ten days. Clover, on the other hand, may last from three to five weeks. Furthermore, within any one locality the average number of nectar trips per days varies greatly with the season, according to results published in 1922 by Park in Iowa.

Large Population Sometimes Reduces Total Yield

Another obstacle to any attempt to judge relative colony strengths in different localities on the basis of the honey crop taken off the hive arises from the difference in length of time elapsing between the end of the honey flow and the period of annual quiescence. In certain regions nectar is available almost continuously during so much of the active season as to make this interval relatively short and of little bearing on honey within the hive. The same is true of regions with both an early honey flow and a good fall nectar flow. In other regions, such as that around Washington, D. C., the main honey flow comes exceedingly early, and the period intervening until the annual quiescence is longer than the entire active season in certain northern regions. During most of this interval, in some cases, the nectar available in the field is below the normal requirements for even such brood-rearing as is necessary to maintain the continued existence of the colony, not to mention feeding the large force of field bees left over after the honey flow. This causes surplus to seem to melt away visibly at times. Under such conditions a colony with a large population of field bees during the nectar flow may show a relatively small surplus of honey at the end of the season, as compared with the seasonal surplus from a much smaller colony located where the number of days on which nectar is available is much greater and where also the number of days on which incoming nectar does not meet the needs of the colony is much less.

Calculating the Variation in Population Throughout the Season

In connection with these general considerations on colony population it will be well to consider the actual performance of a single colony throughout an entire active season. Regardless of locality, increase in colony population during any given time occurs normally only if there is an emergence of young bees during that same period. For purposes of calculation, then, the sum total of colony

population on any particular date may be taken as equal to the total emergence during a period preceding that date equivalent to the average length of life of the worker bee. Since the time of Dzierzon this average for the active season has been considered to be six weeks, although it is known that there are individual variations in either direction. This figure has been used in computing data for the colony to be discussed, while in lieu of actually counting each bee as it emerged throughout the season, recourse was had to counting all the sealed worker brood from photographic records made weekly throughout the active season. From such counts it is a fairly easy matter to calculate mathematically the emergence of worker bees per week, since brood remains sealed twelve days, as an average. Sealed brood represents the last stage before actual emergence, and consequently is better adapted for the purpose in mind than is any other brood stage.

The record for 1922 of the colony presented here is typical, in its general relations, of sixty-two seasonal records obtained since 1920 at the Bee Culture Laboratory at Somerset, Maryland. The colony was wintered in two hive-bodies. The queen had the run of these at all times, and, in addition, for experimental purposes she was given access to the first of the supers when added. She utilized this third hive-body for egg-laying until the bees crowded her out of it with honey. Each hive-body contained ten Langstroth frames. It was aimed at all times to have frames available for egg-laying immediately adjacent to the brood area, so that the queen should suffer no restriction in space available for laying except that imposed by the bees themselves in crowding incoming nectar in and around the brood area proper. The same queen remained with the colony throughout the year.

In the vicinity of Washington, where this colony was kept, the main honey flow comes from the tulip tree (*Liriodendron tulipifera*). If conditions are just right it secretes nectar very abundantly here, living up to its reputation of being one of the best of nectar-yielders. Within the last five years the earliest limit for this nectar flow has been May 17, while it has always practically ceased yielding by June 5 at the latest. In none of these years has it yielded from the earlier of these dates until the other. Once in every few years the locust tree (*Robinia pseudo-Acacia*) furnishes a nectar flow of less than a week, either before or in connection with the tulip-tree nectar flow. In the year in question it came in advance of the main nectar flow, the latter being on in full force by May 20. Sometimes honeydew is abundant during the middle of June, such being the case in 1922. From the end of June until September the amount of incoming nectar, according to past experience, is not sufficient to meet the needs for colony maintenance, and stores in the hive must be drawn on, especially since an abundance of pollen in August gives a stimulus to brood-rearing. In September a slight fall nectar flow may be expected, sufficient to meet the colony's daily needs at the time, but usually not sufficient to yield surplus. This was true of 1922. With these facts in mind we may consider the population of the colony throughout the season.

No attempt was made to estimate the number of bees which wintered over from 1921. This discussion, therefore, concerns only those workers added to the colony by brood-rearing in 1922. The general statement may be made that the colony entered the active season comparable in strength to the ordinary strong colony of the writer's experience in commercial apiaries in the clover region. This is borne out by the rapid rise in colony population in April and May as a result of brood-rearing activity during a backward March followed by a more favorable April. The following summary by months of the number of bees emerging presents a clear picture as to actual brood-rearing results in this colony during the year:

Worker Bees Emerging Per Month

March	8,276
April	28,109
May	47,250
June	36,763
July	30,381
August	22,468
September	23,708
October	13,850
November	705
Total	211,510

From this table it may be seen that 211,510 new bees were reared during the year. The highest number in any month was in May, just the month when the principal nectar flow can be expected at its height in this locality. The fact that the highest number of additions occurs during the month of the honey flow means nothing in itself, so far as gathering a honey crop is concerned, unless the maximum of new worker bees comes sufficiently early for them to complete their normal cycle of hive duties just as the nectar flow is beginning. It may mean much in depleting honey stores if the maximum number of new worker bees comes so late that they are fit only for hive duties during the nectar flow.

Washington, D. C.

THE RACES OF BEES

By Phillip J. Baldensperger

Some Peculiarities of the Egyptian Bees, Another of the Yellowest Races of the Orient

Apis mellifica, var. *fasciata*, Latreille, 1804. The Egyptian bee, the smallest of the yellow races, was more easily met by the easier way of access to Egypt than the other species in the Levant, and that accounts for its name of the "banded bee," given by Latreille, as well as other qualities given by other observers who had not seen the more beautiful Cyprians and others. Encircled by sandy deserts on the east and west and the sea on the north, it has become a fixed species in the course of thousands of years.

The ancient Egyptians, as shown by the hieroglyphic writings dating back 6000 years on the sarcophagus of Mykerinos, knew about the industrious bee and the royal authority ascribed to her at such a remote period. These writings prompted modern writers to consider this smallest and grayest of the yellow species as the ancestor of the Italians, Cyprians, Syrians, and Palestinians. Long before man began to write, bees had flourished and formed into social communities in honey plant regions, as in central and western Asia or central Africa.

Color and Behavior of Egyptian Bees

The Egyptian bee is of a very pale-yellow shade, and the original orange-colored bands, so conspicuous in Cyprians or central Africans, show up in the Egyptian virgins. The dark borders of the segments, which are seen at the ends of the segments, are furnished with gray fuzz which gives the young bees especially a very gray appearance. The crescent at the base of the thorax is almost invisible on account of its dark gray color. The drones are proportionately smaller than those of any other race, and may be seen in the hives at almost any time of the year. Since honey comes in irregularly in Egypt, no particular time is reserved to get rid of them. On account of the very mild winters, these bees never accumulate any stores of honey worth while. They are very poor breeders, and it takes considerable patience to build a colony up to six frames of brood. In the Governmental Agricultural Farm, near Cairo, where several experts in bee culture raise a number of Cyprian bees, to modify the native race, I was told by Mr. Helbawy, the chief, an able apiarist, that there is nothing to be obtained with the lazy strain of Egyptian bees. Another beekeeper, Sami-Bey, said, "The bee of Egypt must be excused, as they resemble the human race of Egypt—burned down into inactivity by the hot summers"—facts noted in more than one way in other countries with reference to humans.

Development of Fertile Workers in Egyptian Bees

Two colonies of Egyptian bees were brought to Prussia in 1863 by the Society of Acclimatization of Berlin, and handed over to F. W. Vogel, a teacher at Letschin. This beekeeper obtained a fine strain of bees by crossing the Egyptian with the German bee, and he concluded that the Italians were descendants of a cross between Egyptian and German bees. Vogel was considered one of the greatest bee authorities, and as such his theory was accepted by all German-reading beekeepers. He stated that Egyptians raise around the queen-cells a number of intermediate cells from which half or three-quarter queens emerge in time, queens which develop into laying workers. He and others went so far as to include the Palestinian or Syrian races in the Egyptian, and to conclude the latter to be the offspring of the Egyptians.

Neither Cori's enthusiasm about the fast-growing Cyprians in 1866 nor Vogel's assertions of half-queen-producing Egyptians in 1863 and the following year, were observed by other beekeepers such as Dr. Gough, Helbawy, and myself. The Vogel theory was said to have been accepted by Dr. Gough, the able conductor of the Bureau of Entomology in Cairo; but he protested in the May number of the Bee World for 1923. The laying-worker theory of Egyptians and Palestinians—that is, that Orientals have fertile workers the day after being deprived of a laying queen—has also been supported by the Vogelians. My brother and I have reared many hundred Palestinian queens yearly, as well as some Egyptians; but during the last 44 years we have not met with one single case of fertile-worker development as early as above stated. Year after year we have raised queens of this race in Syria, Palestine, and southern France, and fertile workers have appeared from time to time with the Palestinians as well and as early as with all other species. In the plains of southern Palestine, where bee enemies loiter about the hives on hot summer days by the hundreds, virgin queens hesitate to fly out on their wedding-flight, sometimes foregoing the desired flight up to many weeks (on one occasion 37 days) without having fertile workers around. Nor did the delay influence the laying capacities of the queen which had passed

the traditional limit of 21 days of virginity, as first advanced by our great Huber, of Geneva.

Egyptian bees, unlike other species, when preparing to swarm do not build queen-cells all over the comb, but prepare numerous bunches of cells resembling bumblebee cells about the bottom of the combs. As they build them lavishly they employ the least possible amount of material, so that the queen-cells appear as grape berries, without any of the artful or fanciful workmanship employed by other races.

Many Virgin Queens Permitted Freedom of Hive

Hundreds of virgin queens run in and about the hives for several days, and live peaceably together, or run about and try to introduce themselves into other hives in the vicinity. When one of the queens has finally succeeded in being mated the surviving virgins gradually disappear during the following week or ten days. That virgins, under such conditions, will be of diminutive size, is very natural, and may be an excuse to justify the half-queen theory. On one occasion, when the Egyptian bees were running over with virgin queens in the Alps, I picked up two or three virgins at the entrance of every hive of French bees—virgins which had been killed by the French bees. On one occasion, however, an Egyptian virgin had succeeded in entering a hive and was accepted by the French bees in lieu of their laying queen. The Egyptian queen was mated in due course, and tiny Egyptian workers emerged in time. The swarm never gathered honey enough to winter on, and died in the course of the following winter at Nice.

In one of the native apiaries of an Egyptian village near the Pyramids an old beekeeper of many years' experience with his bees explained his methods of hive-making, transportation up and down the Nile on boats, artificial swarms, etc. The hives were carried on camelback to the Nile and piled up on a flat boat. A black mark was painted around the boat at the water line. This mark would act as a balance to show the increasing or decreasing weight of the hives as honey came in. He moved up or down the river to new pastures during the season, then brought the bees home again when the honey flow was over. The long tubular hives, made of clay and straw, as is usual, were laid down in layers, opening at both ends. The Egyptian beekeeper could see whether queen-cells were ready, and would cut them down with a long blade to hinder swarming. Egyptian bees do not usually attach the combs to the sides, so considerable light falls in when the hive is opened, and the edges of combs are fully visible for inspection. Occasionally he may have a spare comb of brood or eggs, by which he forms a nucleus, fixing the comb with a couple of sticks inside the hive.

Not only do Egyptian bees build smaller cells than other Mediterranean races, but also the thickness of the combs is diminished by two to three millimeters, seldom varying from 21 millimeters in thickness. [21 millimeters are equal to about $\frac{13}{16}$ inch.—Editor.]

Swarms issue in February, March, or April, according to the position of the apiaries in lower Egypt. Smoke subdues the irritable Egyptians as readily as it does any other of the Orientals.

They winter badly in colder climates; and as they never develop to anything approaching any other species, they may be discarded as useless to beekeepers accustomed to better honey-gatherers.

HONEY AND OTHER FOODS

By E. R. Root

Honey and Other Natural Foods; The Danger from Denatured Foods

In our last issue I explained how I had met in my Chautauqua work the heresy that honey is adulterated or manufactured. In this issue I will explain how to hook up honey with other natural foods for which there is now an increasing demand. The momentum of their sales is now so great that honey should be joined with them.

The slogan of natural foods, such as whole wheat, bran, and other foods that contain a large amount of roughage, is a "band wagon." If we beekeepers get into this "band wagon" with our honey it will travel at a faster rate than alone. So much propaganda has been put out by the food-products people and the food specialists that the public is prepared to accept the statement that the refined white sugars and refined white flour are the prime cause of many of the diseases of civilization, such diseases as, for instance, diabetes.

In my Chautauqua lectures I quote some of the leading authorities, such as Joslin and Davidoff, on this disease, showing that it is a product of civilization, and that it is increasing at a very

rapid rate in America. I show that practically all of our food specialists agree that the natural sugars found in fruits and honey, as well as brown sugars and maple sugars, are far superior, from the standpoint of health, to the ordinary granulated white sugar that has had refined out of it minerals and other food elements that are so necessary to life and health. I show by a chart that can be seen for several hundred feet, that the awful disease diabetes has been keeping pace with the consumption of refined granulated sugar in the United States.

The Suspicious Alliance

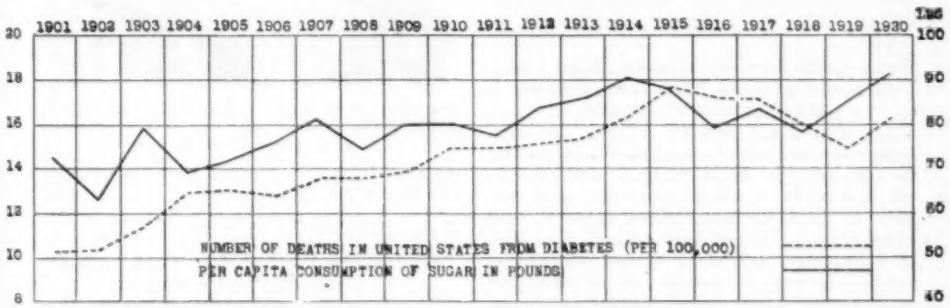
The solid line shows the consumption of granulated sugar, and the dotted line the deaths from diabetes per hundred thousand. This chart shows that there is a deadly parallel; it shows a suspicious alliance, to say the least; it shows particularly that when the consumption of refined sugar was cut off, diabetes decreased; and that when the ban on sugar was removed, diabetes increased. While I do not go so far as to make the claim that white sugar is wholly responsible for this increase, I can not escape the conviction that the excessive use of refined foods, granulated sugar, and white flour (both carbohydrates) is the cause of some of the diseases of civilization—diseases that our forefathers knew nothing about. I point out that those forefathers used the whole wheat, bran and all; corn with the germs in, not extracted, as in common cornmeal; that they knew nothing about refining sugars as we know it today, with the result that they used not only all the food elements that are in their bread flours, but that they had all the food elements that are found in the natural sugars.

In this connection Dr. Joslin, Assistant Professor of Medicine at the Harvard Medical School, and recognized as an authority on diabetes by the medical fraternity, in his book "Diabetic Manual," latest edition, says:

"There is real danger in the candy habit. It is possible that the recent increase in the quantity of sugar consumed per capita in the United States has increased the number of our diabetics. Between 1800 and 1810 the average consumption of sugar by each individual in the United States was 11 pounds a year; but between 1910 and 1917 it was 73 pounds; and Mr. Hoover is credited in the daily papers for September, 1917, with showing this figure for 1916 to be 90 pounds."

The figures are now 102 pounds per capita. Elsewhere Dr. Joslin shows that diabetes is increasing.

At this point in my second lecture I come right down to the proposition that it is perfectly possible for us to live as our forefathers did, not in respect to sanitation, drinking water and the typhoid fly, but in respect to food. Then



The solid line shows the per capita consumption of granulated sugar, and the dotted line the deaths per 100,000, from diabetes, during a period of 20 years. It is interesting to note how the two lines travel together, suggesting a suspicious alliance, to say the least.

I begin hammering on the value of natural foods such as our forefathers had; of the value of the whole-wheat flours, with all the bran, gluten, and mineral elements in, including the vitamines and the sugars that are unrefined; and right here is where honey comes in. After I show my audience the danger of depending on foods excessively refined, and that we are consuming 102 pounds of refined granulated sugar per capita—then, and not before, I begin a discussion of the natural sweet, honey.

How to Cut Down the High Cost of Living

I explain that the housewife may not be able to get a real whole-wheat flour; that the miller, in many cases, uses white flour and then sifts in some bran, calling it graham flour. In other cases he grinds the whole wheat, but grinds it too fine, spoiling the effect of the bran. The teeth need work. I then go on to show that the housewife can make her own flour by

buying a little hand grist-mill for between five and six dollars with which she can make a flour such as our grandfathers used, and which will give health and strength to her family. She not only can make her own flour but her own cereals. At the present quotations of wheat and flour she can make her own flour at less than half the cost of the finely ground product that she obtains from her grocer. The bread that she makes of the home-made flour will have a delicious nutty flavor. It will be an almost perfect food with all the bran, gluten, and minerals that growing boys and girls need. She can likewise make her own cereals for the family, and these cereals will be very much better from the standpoint of nutrition and health, and cheaper, than some of the highly refined cereals put on the market.

The average package cereal that one buys will cost about a cent and a half an ounce or a dish. The home-ground cereal made from raw wheat, at present prices, will cost three-sixteenths of a cent.

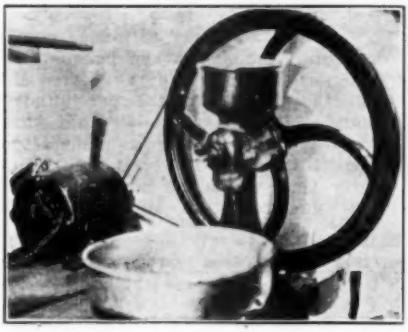
Home-made Cereals; How to Make Them at a cost of Less Than One-tenth of the Commercial Cereals

(1) Buy clean wheat or rye. At our house we use wheat only. Grind it coarse in one of the hand mills. Add a little water to it, and cook for half an hour or in a fireless cooker after it has been heated. Serve cold or hot. I prefer it cold with a liberal spread of honey on it. If you do not call it a most delicious and satisfying breakfast when so served I shall be surprised, and at a cost of only one-eighth of a cent a dish.

(2) Whole wheat without grinding, soaked in water, and then cooked in a fireless cooker, also makes a fine cereal; but I prefer it run through a hand mill.

(3) Take clean wheat, parch it brown, and then grind it in a hand mill and cook as before described. You will then find that you have a cereal that will look and taste like several of the standard commercial cereals on the market. For a change it is very delicious. The parching gives it a nutty flavor that will be greatly enjoyed. Any one of these three cereals before mentioned will cost only from one-eighth to three-sixteenths of a cent a dish, or less than a tenth of the cost of the commercial article. This is an easy way to bring down the high cost of living, and at the same time you get the rugged health of our forefathers, who were not made sick from too much refined white bread and denatured sugar.

In place of using granulated sugar on cereals, use honey. I use it in coffee. Wife and I are using honey exclusively in our cereals and in our coffee. Honey, while it costs more per pound, goes so much further, on account of its flavor, that it is really as cheap as, if not cheaper than, granulated sugar. Try this experiment: Take two cups of coffee. Into one put a level teaspoonful of honey. Into the other put a heaping teaspoonful of granulated sugar. I think you will find, as I have done, that the honey, even with its 17 per cent of water, gives more flavor or satisfying taste to the coffee than the larger quantity of granulated sugar, which is not supposed to have any



C. S. Bell & Co. make a small mill that can be driven by hand or a small one-sixth horsepower laundry motor as shown.

water. It is not a question of chemistry but one of flavor or taste. A natural food of any kind is always better than a synthetic or artificial food of the same sort.

Giving the Best of Our Food to the Chickens and Cattle

It might be interesting to know that chickens and worms fed on white flour only will starve to death in about two weeks, while they will live and thrive on the home-ground flour made from wheat. We as a nation are feeding our children and ourselves white flour in the form of bread, cakes and pastry, and our cattle and our hogs and chickens on what is left—the brain, gluten, and mineral contents of the wheat. Or, in other words, we give the poorest of the wheat to ourselves and the best to our animals.

Where to Get The Hand Mills

At this point the housewife will wish to know where she can obtain those small hand grist-mills. They can be found at any of the mail-order houses, like Sears, Roebuck & Co., or Montgomery Ward & Co. Or they can be had by inquiring of the following named firms who build special hand mills, and who will doubtless be able to give you the name of the nearest hardware merchant who keeps their mills in stock: Root-Heath Co., Plymouth, Ohio; A. H. Patch, Inc., Clarksville, Tennessee; the C. S. Bell Co., Hillsboro, Ohio; Wilson Brothers, Easton, Pennsylvania.

FROM THE FIELD OF EXPERIENCE

BETTER QUEEN-CAGE CANDY

How to Make the Kind that Remains Soft Without Using Honey

As time goes on, more and more attention is being paid to the eradicating of American foul brood, the beekeepers' worst enemy. In the past much work has been done in cleaning it up in certain districts, while at the same time it was being introduced into new districts much more rapidly than it was being cleaned up. It has been spread in a number of ways, but one of the sources of infection has been the diseased honey with which the candy was made that was used to provision queen-cages or cages in which package bees were shipped.

I believe much is laid to this cause, however, that is not deserved. American foul brood breaks out in an apiary. It comes like a thief in the night. The beekeeper, in case he has bought queens or package bees, lays it to the candy, for he can not imagine where else it could have come from. For this very reason, for his own protection I believe it is good business for the shipper to use no honey in any cage candy. If he does not use honey, and in addition has a health certificate on each shipment, it is sufficient evidence to any fair-minded man that he did not get American foul brood from such a shipper.

About twenty years ago I began experimenting with queen candy without honey. Shipments were made to foreign countries, some cages containing candy made with honey, and some made with invert sugar. With the commercial invert sugar, good results were obtained in case the shipments were short or in case the weather was not too dry. On long shipments during hot dry weather the invert sugar would dry out and become hard, while the candy made with honey remained soft. I became curious to know what chemical or element is contained in honey which causes it to remain soft, that is not present in invert sugar. It is well known that granulated sugar can easily be inverted by the use of tartaric acid. So I put the question to several chemists, "What element does honey contain which prevents its drying out, that is not found in invert sugar?" The answer invariably was, "Nothing." Now, from experience I knew the candy made from commercial invert sugar does dry out and that made from honey does not. Yet the chemist said they are alike. Verily, verily there must be an African in the barbed-wire fence somewhere. It ought not to be hard to locate him. I took some of the commercial invert sugar and some honey and compared them. The honey was thicker. May be the only difference was just plain water. It wouldn't take us long to find out.

As I have mentioned upon numerous occasions, when in need of some parts for my queen-rearing operations, I plundered my wife's manicuring outfit and found just what I wanted. Now, as I was in need of a candy thermometer, I turned my steps toward the kitchen. There it was, a nice silver-plated candy thermometer! I knew from experience that it worked mighty fine on fudge, so why not on bee candy? It did, so I appropriated it. But before going any farther let me say that for these irregular actions on my part retribution has overtaken me, for I am poor at remembering dates and never could remember the date of my wife's birthday. So she has fallen into the habit of having two birthdays per annum and reminds me that she needs a manicuring outfit on one and a candy thermometer on the other. "The way of the transgressor is hard."

But now, since we have that thermometer, let's go use it. I found that honey boils at a temperature of 248°, while the invert sugar boils at a temperature of 235°. I then boiled the invert sugar until the temperature reached 248°, the same as honey, when, presto! it acted exactly like honey. I then made some invert sugar by the use of tartaric acid, and boiled it to a temperature of 250°; and I find it is even better than honey, and that it is impossible to dry it out. I have made candy and left it over the register of a hot-air furnace all winter, and yet in the spring the bees took it readily, as it was perfectly soft. I have made tests in shipping queens by having cages provisioned with honey candy and our invert-sugar candy, and can see no difference in results. In long foreign shipments the death rate is no higher with invert sugar than with honey. In one shipment to England the bees on invert sugar were alive, while those on honey were dead.

This invert sugar is easy to make and there is no necessity for using honey in any queen-cage candy. Into certain provinces of Canada, I am informed, bees can not be shipped on any food containing honey. I believe this is a good law and should be enacted in all our states. Why prohibit shipping bees on combs,

and yet allow them to be shipped on candy containing honey and possibly honey containing the spores of American foul brood? A health certificate should be on all queen shipments, but this certificate does not state that the honey used was from that apiary while it had no disease. I have frequently furnished beekeepers provisioned queen-cages for shipping quens, so what good was their health certificate when the honey did not come from their yard?

To make this candy without honey, proceed as follows: To one-half pound of boiling water add one pound of granulated sugar. To this add a little tartaric acid—about an eighth of a teaspoonful will be right. A little more or less will do no harm, as tartaric acid is taken from grapes and bees are fond of grapes. Put in a candy thermometer and allow this to reach a temperature of 248° or 250°. The syrup can then be put in a Mason jar and will keep indefinitely. To make the candy, warm the invert sugar till it reaches a temperature of from 125° to 140°. Then place some powdered sugar on the bread board and mix in the invert sugar. Knead this as stiff as you can make it and then some more. The object of warming the invert sugar syrup is that you can knead in more sugar. If you get this stiff enough, it will be quite hard when it becomes cool and in an ideal condition for bee feed.

Most of the powdered sugar contains from two to four per cent of corn starch to keep the sugar from becoming lumpy. This starch is not good for bees, so it is well to have your grocer place an order for powdered sugar without starch. You can make a simple test to determine whether or not the sugar contains starch. Dissolve a teaspoonful of the sugar in a tumbler of water. If it contains starch the water will appear milky, while if it is pure sugar the water will remain clear.

Vincennes, Ind. Jay Smith.

KINKS, NEW AND OLD

Little Things About the Apiary that are Large in the Aggregate

A good beehive will last a life time if properly cared for and bees are wintered in a dry cellar. Some of our hives over 20 years old can hardly be distinguished from new ones. Floors are the first parts to deteriorate, owing to moisture in winter and to the work of moles and ground mice in lifting up the soil underneath, if hive stands are low, and to destruction by ants. If given a coat of carbolineum when new, and then kept painted with coal-tar roofing paint, they will last much longer than if ordinary lead paint is used. As to combs, we recently melted up some extracting combs, good as new, that have been in use over 40 years. They happened to be of odd size.

Giving the queen the range of two hive bodies has not proved satisfactory with us. In fact, I am inclined to believe that swarming is more apt to occur than when a single brood-chamber is used. It seems that, when the queen goes above, cells are started below, and vice versa, and usually queen-cells may be found in both stories as soon as the colony becomes prosperous. Then there are twenty frames to look over instead of ten if one wishes to indulge in the pastime of hunting queen-cells. However, hunting queen-cells is an "occupation" which the practical apiarist can hardly afford to follow.

I think that I have tried about every plan advocated for swarm control in the last twenty years—at least every one that seemed to me reasonable. A modified Demaree plan is by all odds the most satisfactory in extracted-honey production, and a modified form of the Dr. Miller plan for comb honey. We don't wait, however, for the bees to take the initiative in swarming; we give them "advance treatment." With the Demaree plan of swarm control, good combs do not result if foundation is used in the lower story, for the reason that most of the bees are attracted to the brood in the upper story. It follows that drawn combs should be given. In hiving swarms for comb-honey production it is preferable to use foundation; for, if given combs, the bees will deposit honey in them in preference to drawing out the foundation in the sections. Besides, if the season is prolonged they are more apt to swarm later.

It is well known that better combs are secured if full sheets of foundation are placed in the super immediately above the brood, but one may get almost perfect combs if the following is practiced: When hiving a natural or "shook" swarm, place an empty super or hive body (no frames) underneath the hive containing the full sheets of foundation. The cluster will then become suspended from the bottom-bars of the frames and will work up gradually. Not only will the bees be less apt to abscond, but also the foundation will be relieved of the weight of bees which may cause sagging and it will be drawn down to the bottom-bars, making the best of combs. In three or four days the empty super should be removed and supers given. In this I am assuming that there is a honey flow and that the colony is reasonably strong.

The fellow whose bees do not swarm is a near relative of the one who never gets stung. He is a first cousin probably

of the "bee king" who can tell all about the condition of a colony by looking at the outside of the hive. Many beekeepers do not look through their colonies often enough to know what the actual conditions are or what really takes place within the hive. There are some who may secure a crop in spite of let-alone practice, their success being due to local conditions rather than to their so-called method. Of course, it is possible to waste valuable time in "puttering around," but for the experienced bee-man who knows what he is doing, there is no work more profitable than frequent systematic examination of every colony throughout the summer season.

We find the Multiplex foundation-fastener the best of any we have tried, but we nail fast the sliding blocks, as it is easier and better to slip the foundation over the block. Section-presses, like drone-traps, are of little practical use. When one gets the knack, 20 to 30 sections per minute can be folded accurately by hand. Fastening the foundation is nearly as rapid. Paraffining the tops of sections saves an immense amount of labor in cleaning. It is done after the super is packed, by a downward stroke of a varnish brush dipped in hot paraffine. Better still, use a fold of three or four thicknesses of cotton cloth over the brush. A small alcohol stove about the size of a small kerosene lamp is used for heating both the blade of the foundation-fastener and the paraffine. It is safer than kerosene and there is no smoke or soot. The paraffine is heated in a small can placed inside of a larger one containing water. E. S. Miller.

Valparaiso, Ind.

[A serious objection to stationary blocks is the tendency of the foundation to twist slightly in sliding it on the block, instead of sliding squarely against the heated knife, resulting in one side being poorly fastened to the wood. By moving both the sheet of foundation and the block this does not occur, since the block moves on a guide. Another objection is that more effort is required to slide the sheet of foundation on the block on account of the greater friction between the wax and the wood, especially in warm weather, thus reducing the speed. The blocks should be smooth on the lower side so that the lightest pressure will move them. If any of them stick or require more pressure than others, the speed of the operator is reduced and the foundation is not as securely fastened.—Editor.]

COMPARATIVE HONEY PRICES

Greater Decline in Purchasing Power of Honey in Canada than in the United States

That interesting editorial on page 287, May issue, inspired no doubt by what I had to say in the same issue of Gleanings regarding honey prices of today as compared with those of some years ago, is no doubt true in every way in so far as the United States is concerned. For many years prices in the United States were much lower than in Canada, but such is not the case today. So the statement, "With honey prices double those of twenty years ago," will not apply to Canadian conditions, and that is what I was dealing with when I wrote the article in question. As stated in that article, 7¼ cents per pound in large barrels was the lowest price I ever had to accept since we have been in the business. Right now if I were to offer 10½ cents at the shipping point for honey in barrels, I believe I could buy carloads if the crop is up to normal this season. I certainly know of one fairly large producer who would take a chance on that price, as packing in barrels saves a great lot of work, and the package costs practically nothing, compared with small tins, and in other ways it has many advantages. That is a long way from being double the price of 20 years ago.

As to greater yields being procured than in former years, that is not the case with us, as our average, say 15 years ago, was just as good as it has been for the last five years. True, we are able to handle more colonies than we did years ago, solely on account of having the use of automobiles, something we knew nothing of when we started into beekeeping. Our management is practically the same as 20 years ago, and frankly I know of no great discovery since that date so far as practical management is concerned that would go to increase colony production. At any rate, our average yield is about the same as it was years ago.

Markham, Ont. J. L. Byer.

[The Editor had no thought of controverting Mr. Byer's statement regarding prices in Canada. The figures given were intended as information concerning prices in the United States in addition to that given by Mr. Byer for Canada, but unfortunately in cutting down the editorial all but one reference to the United States was taken out. As Mr. Byer points out, Ontario beekeepers have suffered more in the decreased purchasing power of a given quantity of honey than have beekeepers in this country.—Editor.]

NEW USE FOR AN OLD IDEA

One Hundred and Eighty-five Queens Introduced with a Loss of Five

The successful introduction of queens is a subject which has been discussed so much that this contribution may seem unwarranted. However, since we are always trying to discover easier and yet better methods of doing everything, this method is recorded.

The idea of introducing a queen in a cage that can be entered by the workers at will is not new. The Thompson cage was described in Gleanings years ago. The Jay Smith cage embodies this same idea, as do many others. Most of these cages require the removal of the queen

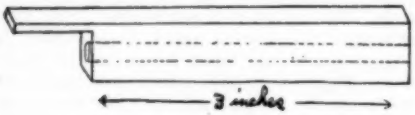


Fig. 1.—Block of wood 3x1x½" with a ⅜" hole through its length for the long candy plug.

from the mailing cage. The method described here enables one to use the ordinary mailing cage and the above idea without transferring.

Wm. Baker, of Davis, California, made this cage, which has been used here with remarkable success. Mr. Baker had read of the arrangement for admitting bees into the introducing cage. His use of the idea resulted in using the mailing cage.

A ⅜" hole was bored through a 3x1x½" block (Fig. 1), so that the hole would fit over one hole in the mailing cage. This hole was filled with candy and otherwise left open at both ends. The block was tacked to the cage after removing the confining tin. For introducing, the cardboard was removed from the candy end of the mailing cage and a strip cut from old zinc queen-excluder was tacked in its

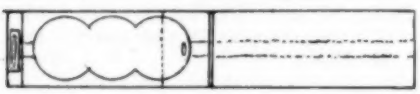


Fig. 2.—The block containing the long plug of candy is tacked to one end of the mailing cage and a piece of excluder zinc is tacked over the short candy plug in the other end of the mailing cage.

place (Fig. 2.) A small hole was punched through the candy in the cage and enough of it was removed to allow a bee to get inside under the queen-excluder. This cage and tube were placed between the tops of two brood-frames immediately after removing the old queen from the hive.

Before long the bees had eaten the candy from the excluder end of the cage and were going in and out freely. It took from 2 to 3 days for the bees to eat the candy from the tube, thereby liberating the queen. As indicated above, 180 queens out of the 185 were out and laying eggs when examined four days later. Two of those not accept were never liberated because they died in the cage, evidently from injury in shipping. One was balled upon opening the hive. The other two were liberated and killed, evidently. A dearth of nectar existed all during the season and no feeding was done while introducing.

The use of this method costs the beekeeper nothing extra except ten minutes' time for making and applying the blocks of wood. The danger of requeening during a bad time is apparently almost entirely eliminated. Geo. H. Vansell.

Davis, Calif.

SHIPPING DISEASED MATERIAL

The Danger of Scattering American Foul Brood by Discarded Containers and Second-hand Cans

In April Gleanings Mr. Holtermann gets "all het up" over the shipment of "slumgum, refuse from rendering comb and wax scraps." I am wondering if he knows that the American Honey Producers' League took occasion to go on record, according to E. W. Atkins in April, 1925, Beekeepers' Item, that "nobody can actually prove that American foul brood is transmitted by honey." Although I have painful evidence that it is so transmitted, the point I wish to raise is that refuse from comb-rendering should be safe, since wax from comb infected with American foul brood has been proven to be disease-free. There can be no question that leaky packages of diseased combs which have not been properly heated are a menace.

Mr. Holtermann is right in sounding a note of alarm regarding the transmission of disease by the agencies he mentions, but I wish he had included the other sources which are more dangerous because more numerous; namely, the honey from infected colonies which is being broadcast over the land and unsterilized used honey cans. Elmer G. Carr.

Pennington, N. J.

[There must be some misunderstanding here, since it is generally accepted that honey which is sufficiently contaminated with spores of American foul brood can transmit the disease, although the danger from this source has probably been greatly overestimated. Second-hand cans that have been thoroughly cleaned of honey on the outside can safely be refilled with honey. They should never be shipped without such cleaning.—Editor.]

SIFTINGS

by J. E. Crane

How often are we reminded of the old proverb that a little knowledge is a dangerous thing! Farmers have heard that spraying is a good thing to kill the larvae of the codling moth, and so fill their apple blossoms with a deadly poison that will kill bees as well. How much better to fully understand the subject before spraying poisons so freely. See editorial, page 285.

* * *

On the same page the Editor says, "The Ohio Agricultural Experiment Station has obtained some interesting figures on the increase in the yield of corn and oats following different kinds of clover on the rich black soils of northwestern Ohio." Well, I should say they are interesting! Think of an average annual increase of 24% of corn after red clover and 57% after white sweet clover. This doubtless gives twice the net profit of such crops without the clover for fertilizer.

* * *

Also on the same page the Editor says, "Busy Bee Not so Busy." This reminds me how uncertain and imperfect, in a way, everything is in this world. There are so many sides to almost every question that it is extremely difficult for the most of us to see facts exactly as they are. Fewer are able to state them as clearly as they see them, and still fewer are willing or able to give any subject an unprejudiced opinion. Let us be charitable.

* * *

Attention is called, on page 286, to the new idea of selling honey by measure. Well, what next! I thought we had about troubles enough already. Must we sell liquid honey by gallon, quart, or pint, and comb by the pound? A great deal of honey is sold today in bottles. Shall we mark pound bottles ½ quart? If such a law is likely to increase the amount of unripened honey on the market, let us all with one accord put our feet on it and smother this new idea before it has time to grow very strong.

* * *

The Editor well says, "The problem of fermentation in honey not fully ripened is more serious than most beekeepers realize." That is so. One does not have to buy extracted honey very long before he will begin to realize this truth in a very sensible way. Just smell it, and then turn to a lot of well-ripened honey with its delightful fragrance, and you will have some settled conviction on the subject. So long as beekeepers will sell such stuff, let them not complain that prices are low and markets dull.

* * *

Jay Smith tells us on page 301 how to secure strong colonies and no swarms—a condition most to be desired by extensive beekeepers. But alas! it does not fit my case, for his crop comes late in the season and he produces extracted honey, while I am producing comb honey. But really it seems much easier to control swarming while producing extracted honey than comb honey.

* * *

Again, on pages 296 and 297, M. A. Gill gives us his method of producing comb honey and eliminating all swarming; but his main honey flow comes late from sweet clover and alfalfa, which will permit quite different management from that where the main honey flow comes early in the season. I quite agree with Mr. Gill when he says it is better to buy bees from the South to build up your weak colonies than to rob the strong ones for this purpose, provided one can do so.

* * *

Few things regarding bees and honey interested me more last year than to learn that E. R. Root had undertaken to stump the country, so to speak, for honey. Now we learn (page 292) that he is to follow it up this summer again. Good! And we wish him great success this year. His interesting article on "Heresies About Honey," is well worth reading and thinking over carefully. Human nature is queer, and still falsehood will outrun the truth. It seems to be easier to believe the falsehood than the truth. But we are able to see what we are up against and how we are to fight it.

* * *

M. A. Gill calls attention (page 297) to the necessity of carefully fastening foundation in sections. Unless one has watched carefully he will be surprised to see how many imperfect sections of comb honey come from the falling of the foundation starter. With the use of an electrically heated plate we are able to do better work this year than heretofore. We have tested a Multiplex foundation-fastener this year, and like it. While we could not put in the starters any faster than with apparatus we had, it does the neatest work of anything I have ever seen.

FROM NORTH, EAST, WEST AND SOUTH

In Southern California—The honey flow from orange has been a great disappointment to most beekeepers. Perhaps 20 pounds per colony would be putting the estimate from this source plenty high enough. Colonies not being up to strength at the right time, with rainy, drizzly, cloudy, and cold weather during the time the trees were in blossom, are some of the reasons why the bees did not do as well as it was hoped they would. These, combined with the lack of sufficient rainfall, and also the absence of those "gobs of nectar" in the blossoms, explain the short crop from orange this year.

The light rainfall and dry, discouraging outlook on the outside ranges has caused many beekeepers to look toward the north for summer pasturage. Consequently a number of beekeepers are making preparations to move their bees to Utah and Idaho. Here they hope to at least get enough to pay expenses and have the bees fill up for winter. If we had plenty of experienced help and young men who wanted to try it out we would not hesitate to ship, as we feel that it will pay.

The industry throughout the West has been for the past ten or a dozen years and still is going through a period of readjustment, both as to methods and conditions. Few and far between are the beekeepers who operate on a large scale and do not move their bees, or have not done so in recent years, and considerably changed their methods of manipulation or management.

It is hard to realize that in the northern counties the rainfall has been as high as fifty inches, while with us it has been only about seven. I was looking over the outside ranges recently and noted that the black sage had made a short weakly growth of about six inches and the wild buckwheat was budding a little. Some of the colonies that we left on the summer stands have filled up nicely, which only goes to show that we can only guess a short time ahead as to what a given territory will give in the way of a honey flow.

The market seems almost bare, still the demand for anything but the white and very light honey is almost nil. Better honey of a better grade would be a good maxim to keep before the honey producers. A few combs containing old dark honey, when extracted into a tank of nice white honey, will do a lot of coloring. It is easy to see what a little care and selection might save one when there is a difference of some five or six cents between the price of the white and the dark honey.

Our new law proposed for California beekeeping went to the committee and was allowed to die there. There were some good points in it, but many of us did not approve of it as a whole and thought it better to continue under the old law and take more time to draft a new one that would meet the approval of the beekeepers of the whole state.

The apiary inspection work in Los Angeles County was placed by the Board of Supervisors under the jurisdiction of the Horticultural Commissioner March 1. This seems the logical way to get the industry under one general plan throughout the whole country.

Corona, Calif. L. L. Andrews.

* * *

In British Columbia—Bees have come through the winter very well in British Columbia, as they usually do following a good season for honey production the year previous, since they are then usually better provided with wholesome food to carry them along until the following spring.

Most of the wintering troubles in British Columbia are caused not by the cold, as some people imagine, but by unwholesome food, consisting of honeydew or fruit juice stored in the combs the previous fall. The winter mortality in the fruit-growing districts is frequently quite excessive on account of the bees' working on the fruit that is so frequently left on the ground under the trees, and storing the fruit juice from it in the combs. This is far more disastrous to them in the winter than even honeydew, and when there is a quantity stored in the hives and not taken away by the beekeeper they succumb quite early in the winter season.

Beekeepers are advised to take away all combs containing honeydew or fruit juice early in the fall, and replace with others, and feed up quickly with sugar syrup consisting of two parts of sugar to one of water. If this is done bees will winter as well in British Columbia as in a milder climate, and indeed often very much better, as they rest contented in the hives practically all the cold season.

The spring this year has been colder than usual, with sharp frosts at night, so that the bees could work for only a short time on the willows, and therefore brood-rearing has been somewhat re-

stricted. In the Fraser Valley the bees were not able to obtain any surplus from the coast maples on account of the cold weather, so that there will be no maple honey this year.

Bees in combless packages are now daily arriving from the United States, and are, as a rule, coming through in excellent condition. Most of the package bees are now shipped in cages containing syrup feeders for providing the bees with food during the few days' journey, and they appear to come through far better in this way than when shipped with candy.

One of the enterprising bee supply manufacturers in British Columbia has had a sample Herrod-Hempsall radial honey extractor, which has been patented in Canada, shipped out from England, so that it will soon be possible to demonstrate here whether this system of honey extractor is the success it is claimed to be. W. J. Sheppard.

Nelson, B. C.

* * *

In Montana—Montana experienced quite an unusual winter this year. Since the cold spell during December the weather has been quite warm. As a result of this bees have wintered better than was at first expected. The fine weather during February, March, and April, however, resulted in a very heavy consumption of stores with heavy brood-rearing going on. Colonies without sufficient stores have starved out. Weather conditions have been so favorable that the season is about three weeks earlier than usual. Plant growth has progressed finely, with our rainy season just beginning. All honey plants should become well established before the dry season commences. With prospects for at least an adequate amount of irrigation water, honey crops this year should come up to normal or a little better.

Since last contrbuting to this department, the legislature has passed the new law presented to that body. It is now compulsory for all beekeepers to register their bees and pay a registration fee. The money accruing from this source is to be used for inspectional purposes, and it is hoped that a good beginning can be made in disease eradication and control work. The new Commissioner of Agriculture, A. H. Bowman, has appointed the writer to take full charge of this phase of the work. The area clean-up method will probably be used.

Due to the fact that the last legislature again cut the college appropriations, it has been necessary for the college to discontinue several departments, among which is beekeeping. Formerly the work was supported by the Veterans' Bureau, but since this work is now completed and there are no college funds it has become necessary to discontinue the college work in beekeeping. It is hoped, however, that the legislature will react more favorably the next time they meet so that the course can be reopened.

Bozeman, Mont. O. A. Sippel.

* * *

In Wyoming—Some of our brethren have stated that Wyoming is making an "awful holler" about the importation of foul brood, even though we were rotten with it in the state and not doing much about it. By this time they have heard that the Wyoming Beekeepers' Association obtained a $10,000 appropriation at the last session of the legislature. What they may not know is that co-operation from the counties will equal or even exceed this amount. We don't think this is so bad for a "wild and woolly" state with less than 500 beekeepers, large and small. We admit we have foul brood, altogether too badly, but we won't admit we are doing nothing about it.

The revised State Entomologist bill secured by the association includes, besides the apiary inspection work, insect-pest control, horticultural inspection, and plant-pest quarantine.

A corps of about fifteen apiary inspectors is being lined up for this season's work. C. H. Gilbert, of the University of Wyoming, has been secured to supervise these inspectors and co-ordinate the foul brood control campaign in general.

The revision of the apiary inspection law includes the following new points: (7) absolute prohibition of the shipment of bees on combs into Wyoming; (2) registration of apiary locations with a license fee of $1.00; (3) obligating the commercial beekeeper to assist with the inspection in his yard; (4) authorizing the destruction by fire of infected bees and equipment.

Bees have wintered exceptionally well in Wyoming and are now building up well. Feeding is necessary in many localities because the colonies are exceptionally strong. The dandelion honey flow has not been as good as usual on account of dry weather. Sweet clover and alfalfa plants are still in good condition, though a drought threatens. Our supply of snow in some mountains is short. However, May is our wet month and there is not yet reason for much worry.

The two samples of comb honey sent to Washington from Wheatland, Wyoming, for the East vs. West contest on granulation, were two out of nine that came through 100% perfect. Wheatland

is our only region which produces much comb honey. Three carloads of this product were shipped last fall from this point.

The Wyoming Beekeepers' Association has started a news sheet, entitled the "Wyoming Beeline." In addition to members of our association, this will be sent to organizations and institutions which wish it. The start of this sheet is modest, but we hope to develop it into a good monthly bulletin.

Laramie, Wyo. C. L. Corkins.

* * *

In Texas—The conditions during March and April taught the beekeepers of southern Texas the meaning of the word "hectic." There has been practically no rainfall since June, 1924. There was a fair fall honey flow and bees went into winter quarters with plenty of stores. The even, cold winter was very favorable, and little or no winter loss occurred. The average winter consumption of stores was about 8 pounds.

The drought prevented the blooming of the early spring annuals, and it looked as if the bees were facing starvation. Brood-rearing began late and before the remainder of the winter stores were consumed mesquite and guaiacum came into bloom, and within three weeks the bees stored a good crop. It was next to impossible to give them room fast enough. Foundation in frames of Langstroth size was drawn and filled in three days' time. Then the heat became so great that the blooms dried up, the honey flow ended all at once, and the bees, still young and active, are now almost crazy. Rains during the last week in April put an end to this condition in some parts of the state, but the most of the central part is still dry.

The prediction that a dry winter means an early mesquite honey flow proved correct. The flow from this plant this spring was as widespread as the plant and was very heavy. It came before the colonies were ready but most beekeepers report good averages. Strong colonies gathered as high as 250 pounds. The common average seems to be about 40 pounds. In the Rio Grande Valley some extracted as early as March 25, and in the San Antonio district April 12. These are the earliest dates for extracting on record.

This season has shown that guaiacum and pad cactus can be classed with mesquite as giving a heavy bloom after a dry winter. The common response comes from the fact that each plant possesses a very large, shallow root system.

In normal years the sequence of the blooming of plants producing surplus honey is as follows: Agarita, huajilla, guaiacum, Mexican persimmon, and mesquite. This year the order was almost reversed. Agarita bloomed in a very few favored localities. Then came guaiacum and mesquite with a heavy honey flow. Huajilla and Mexican persimmon bloomed together, but were cut short by the heat, temperatures above 100° occurring for several days. The various catclaws bloomed throughout this time and added much to the surplus.

The beekeepers are the lucky men in Texas this year. The large part of the farmers have planted no crops as yet. Many beekeepers have already taken good crops of honey. The pound-package sellers and queen-breeders will do well, as the hives now are well filled with new honey.

The activities of the beekeepers' associations are beginning. The annual spring picnic of the Guadalupe County Beekeepers' Association was held April 29 at Seguin. H. B. Parks.

San Antonio, Tex.

* * *

In Wisconsin—May 4. The past ten days have been unfavorable for the bees here, on account of being too cold, too windy, or too cloudy. Before that the weather was favorable for the bees to work and prosper, and they did. They were not saving with stores in the hive even if the amount was getting low. With such colonies that are low in stores the hives are full of bees and sealed brood, but the amount of unsealed brood has been reduced in accordance with the amount of stores in the hive. Such colonies must be helped by feeding in some way at once. Some dandelion is in bloom, but it will be a few days yet before the bees can make a living from them and fruit bloom if the weather permits.

While clover was in more than excellent condition last fall, much of it has been winter-killed, especially red clover and alfalfa. Of course, this has only an indirect effect on alsike and white clover plants, but it surely ought to give the remaining plants a better chance to grow, prosper, and produce honey, weather permitting. Rain is needed now. Prospects may be ever so good, yet a small crop or even a failure may result in spite of all the good prospects.

The daily papers printed articles weeks ago stating that "the bee-men are assured of a good honey crop this year." Such reports really mean nothing to an experienced beekeeper, because he knows how much can happen between "good prospects" and "assured of a good crop." Such reports do not help the consumer except to make him believe that honey will be cheap, and if it proves to be high because of a small crop the bee-

keeper may be obliged to explain why the "assured crop" failed to materialize. Therefore the effect of the reports of the assured crop on the beekeeper and the consumer are harmful.

The University of Wisconsin has arranged with local associations for a series of meetings in different sections of the state, and the Wisconsin bee tour will take the place of the regular summer chautauqua this year. Honey-producers and apiary-inspectors will take a trip through the area clean-up regions, to find out what good has been done. This will be August 10 to 14, and will include a visit to the G. B. Lewis Co. at Watertown and a bottling plant in Milwaukee, as well as visits to as many beekeepers as possible. E. Hassinger, Jr.

Greenville, Wis.

* * *

In Michigan—This is May 6, and as I sit comfortably seated in a furnace-heated room, the temperature outside is near the freezing point, and the wind is blowing a strong gale from the North. There have been white frosts or freezing temperatures nearly every night, and practically no pollen has been brought into the hives, so that the bees could continue brood-rearing that was started in a small way in early March in outside-wintered colonies.

On April 22 and 23 I went through one hundred colonies that were wintered outside and still packed in shavings, by removing a portion of the top packing. In all but three colonies I found only eggs, showing that all brood-rearing had ceased at least three weeks previously. I at once placed out feeders for open-air feeding; and although the feed was made extra sweet to get the bees started quickly, the weather has since been so cold that the first feeds have not been taken up as yet and is still in perfect condition. It is so cold the bees simply can not leave the hives. This will weaken the colonies, and may prove quite disastrous.

Cellar-wintered bees were placed out somewhat earlier than is usual. Mine were taken out on April 9. These colonies are in much better condition than outside-wintered colonies, and if it should warm up at once they will yet make good colonies for the harvest.

Colonies were very strong in bees last fall, but have dwindled very heavily this spring. I never saw the stores of honey disappear any faster. I am certain that the total loss of bees will be much heavier than has been reported. It has been a very unfavorable spring for the receiving of package bees.

The demand for honey has been good, with but little to offer. Comb honey especially is very scarce, and there seems to be a growing demand for this delicacy.

Preparations are going forward to make the summer meeting a big success. It is to be held at East Jordan this year on August 4 and 5. Secretary Russell H. Kelty, of East Lansing, is planning a big banquet, the hour preceding to be spent in field sports and games in addition to his usual generous program. Our Board of Education has kindly granted us the school auditorium for holding the meetings and have turned over the campus and athletic field for camping and the sport feature. There are plenty of camping sites along streams and by lakes, with good fishing and bathing and the finest drinking water.

East Jordan, Mich. I. D. Bartlett.

* * *

In Louisiana—Louisiana is threatened again with a drouth like the one of last year. In some localities not a drop of rain has fallen for six weeks and I am afraid if it continues the honey flow will be cut far short of normal. Last year in spite of the great drouth our honey crop was larger than any for the last seven years. There were reasons for this. Here in Louisiana the major part of the honey plants are in the lowlands adjacent to rivers and lakes. They are deep-rooted plants, the roots extending far down into the moist earth. Of course, the drouth could not affect the honey flow for that season, and as there was scarcely any rain for several months the bees gathered nectar every day during the summer and the result was an enormous crop. I think the results this year will be different, as there is very little moisture in the earth and, this drouth following the other so closely, plants will not produce the amount of nectar that could be expected under normal conditions.

The honey flow this spring from willow was "spotted." In some localities it was quite large, while in others there was hardly any. Here at Baton Rouge where we usually expect to get a surplus of upwards of a hundred pounds per colony, the crop will not average twenty pounds. White clover and dogwood are now blooming and the bees are doing finely. Two or three supers are filled on some colonies and the honey flow will last all of May and into June.

There is very little honey shipped out of Louisiana, most of it being consumed by manufacturers in New Orleans. The great bulk of our honey is made from peppervine, which is commonly called "deervine," and some from buttonwood and tupelo. The latter honey is light in

color, while the others are amber, but good for table use. Peppervine and buttonwood can always be depended upon for a good crop, and beekeepers living adjacent to the lowlands never fail to reap a harvest. At the present time there is no honey on hand from last season, although the new crop is beginning to move and at a brisk pace.

There seems to be more interest in beekeeping this year than ever before and many of the old-timers have changed from the box-hive method to the up-to-date modern hives. Last year's great honey crop helped to put it over. In many localities a 200-pound average was the rule, many individual colonies going over 400 pounds.

The annual spring shipment of live package bees is now on and several of our large shippers, having all they can do, have closed their books against any more orders for this year.

Later: We have had good rains all over Louisiana, in some districts as much as three and a half inches.

Baton Rouge, La. E. C. Davis.

* * *

In North Carolina—During the past two weeks the honey flow in the eastern section of the state has been interfered with considerably by unseasonably cold weather. Then, too, drought has at least threatened to make inroads on the nectar supply as well as crippling considerably the crop conditions generally. In spite of these conditions, however, this is proving to be an exceptionally good honey season in this portion of the state. Finished comb honey in ordinary shallow and deep frames by April 18 is exceptionally early for this locality under conditions that usually prevail, but ten or a dozen supers were ready in my apiaries by that time this season.

The storing of surplus honey has scarcely begun in the Piedmont and the western sections of the state, but the general conditions are understood to be very promising for a good season there.

This state continues to be gratifyingly free from brood diseases, although they are present in several isolated localities. With the efficient co-operation of the state and federal authorities, they seem to be kept well under control. Then, too, beekeepers generally seem to be remarkably alert in the matter of avoiding inroads of this sort on their industry, in spite of the fact that North Carolina has been all along and will likely remain for many years a state of "side-liners" in beekeeping. This is chiefly because North Carolina has not the great area of clovers and other honey-producing farm crops that characterize many of the northern and western states, as well as some of the states further south. It is wild flowers that provide the greatest amount as well as the choicest honey gathered in North Carolina.

This dependence on wild flowers makes it necessary for us to so locate our apiaries that the bees will have the fullest possible access to the wild spring flowers and at the same time also be within reach of a goodly amount of farm lands that will yield honey in the late summer and fall, to go as far as possible in assuring winter stores after the spring surplus honey has been taken. However, beekeepers generally are working this out and getting their bees "settled" in a generally satisfactory manner.

Wilmington, N. C. W. J. Martin.

* * *

In New York—The last week in April and the first week in May were cold and cloudy, with several light snowfalls included. Such weather, of course, has not been conducive to bee-flight, so that as a result the early fruit bloom (cherries, pears, and peaches) that needs cross pollination will doubtless have a meager setting of fruit. It has warmed up again (May 9), so apples may not suffer in this respect. The two weeks' confinement of the bees, with their consequent inability to add to their stores, which at this time of the year are always low, has meant a heavy drain on their food supply, so that many colonies in New York, as usual, are on the verge of starvation. A letter from a beekeeper friend in Chautauqua County is significant. He says: "Bees are getting nothing from fruit bloom so far. Too cold and rainy. Apple blossoms are just opening. Clover looks well, and bees building up fast, but am feeding a good many colonies. This will be the last spring that I will do it. Henceforth they will have enough in the fall to last until clover."

In addition to the support of the work of the two state apiary inspectors, W. D. Wright, of Altamont, and Charles Stewart, of Johnstown, the legislature has appropriated $5000 for the employment of deputy inspectors to assist in the control of bee diseases. The Department of Farms and Markets, which carries on this work, has recently decided to adopt the area-clean-up system, a method which embodies the concentration of the work of the inspectors in a limited area until that area appears to be free of the disease. It is expected that the areas in which that work will be started will be announced at an early date. The writer will co-operate with the inspectors by holding meetings in the clean-up areas, at which instruction will be given in bee

diseases and their control, with special emphasis on American foul brood.

The market is practically bare of local honey and prospects for clover are excellent where bees are being kept in good condition. California has again experienced a dry winter and as a consequence, because of her small sage honey crop, New York white clover honey will continue to be in good demand on our wholesale markets. R. B. Willson.

Ithaca, N. Y.

* * *

In Ontario—The past three weeks in our section of Ontario have been trying to the bees and the beekeepers. An unusually early spring has been followed by a long period of dry cool weather with cloudy skies and much cold north wind. As a result vegetation has made little growth and bees have gone back instead of building up, this applying only to colonies not up to normal strength, of which fortunately there is but a small percentage this year. Strong colonies have used up a great lot of stores. With almost nothing coming in for three weeks and much brood, nothing else could be expected. We have found a small percentage of colonies getting short of stores and have had to feed a few. The trouble is not in feeding these few but in finding out where the needy ones are. Spring feeding is a miserable business and we have resolved time and time again to so feed in fall that none would be necessary in the spring; but nearly every spring we find it necessary to feed a few, despite all our good resolutions made the previous fall.

Some years ago a well-known publicist, connected, to a certain extent, with the beekeeping industry, made the statement at a convention that he did not think a single beekeeper devoted his entire time to beekeeping, but in a measure depended on some other calling to help out his income. The statement was widely challenged in the beekeeping press at the time, and I think rightly so, for even at that period many were depending upon beekeeping for a living, while today that number has been multiplied a great many times as compared with conditions existing 15 years ago. True, many beekeepers sell a few supplies, others keep poultry as a side line, while others carry on a bit of gardening to fill in spare moments. Yet these men really depend upon the bees for a living, as these side lines in the aggregate usually bring in but a small percentage of their income.

Personally, I took a short course in poultry-keeping, expecting to raise aristocratic chickens in early spring when not busy with the bees, and also devote some of the winter hours to that work as well, as time always hangs heavy with me in winter with little to do, for beekeeping certainly offers little work in the winter season. But I soon came to the conclusion that I would never be able to tell a 40-cent chicken from a $40.00 chicken when it was six weeks old, as a well-known professor said was necessary in order to become an expert poultryman, so I did not put my acquired knowledge to work in the chicken game. More recently we have taken up the raising of silver foxes and we find it gives us light work to do in the winter time, and does not interfere with our beekeeping work much in the summer time.

Whether we find more work to do by keeping more bees, as Mr. Hutchinson so often advised, or by taking up some side line, is a matter of one's personal taste and choice, but I venture to say that most of the commercial beekeepers will continue to make the bulk of their income from the bees, even if they do some other work in the winter time and in spare time in summer.

I am acquainted with some very busy men who have large business interests, some of whom keep bees, some poultry, and others have different kinds of recreation that really mean work, but surely a "change is as good as a rest." Yet these business men make no claim to being anything else than that which their main calling designates them. So likewise many hundreds of beekeepers will have some other side line as a hobby or as a means of bringing them in some extra money and providing work when not busy with the bees, yet they are "beekeepers."

From what I can learn, honey is moving well, with good prospects of all of last year's crop being out of the way soon. I notice by the daily press that the McKenna preferences to the Dominions have been brought into effect again recently by the British Parliament and if no change has been made from original schedule of products included in this preference, honey will be one of the favored items. If this is the case, the outlook for clover honey sales in Britain should be stimulated, since our honey is in high favor over there as matters stand now with no preference. This is May 9, but fruit bloom is not yet showing at all and willows (the large varieties) are just opening, notwithstanding the very early break-up this spring. So far as the bee season is concerned, conditions are not much earlier than other years. Soon we will be at the work again in earnest, no doubt, and I sincerely hope that the beekeeper's labors will be crowned with success in 1925. J. L. Byer.

Markham, Ont.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Strengthening Weak Colonies Adding one or more pounds of queenless package bees to weak queenright colonies in the spring to supply the necessary workers for the rapid building up of the colony for the early clover honey flow in the North, is a sure way of saving that colony and reaping the harvest that colony would have lost.

Here is a new and easy way of adding the bees—no newspaper for them to gnaw through and no necessity of caging the queen already in the hive. Upon the arrival of the bees, feed the usual sugar syrup until they are gorged. Then go to the hive they are to strengthen and remove the cover over the bee-escape hole in the inner cover. Next remove the cover closing the filling hole in the cage of bees. Invert the cage as shown in the picture, so that the two holes will connect. Place an empty hive body and cover over all to retain the warmth and the bees in the cage will pass down slowly and join those below. There will be no fight and the queen will not be molested. The empty cage can be removed inside of 24 hours.

J. R. Schmidt.

Cincinnati, Ohio.

The arrival from the South of re-enforcements for weak colonies. These are queenless packages of young bees. After being fed liberally the bees are ready to be given to the weak colonies.

Providing Extra Ventilation When you tier up, provide light narrow slats, wide enough to cover the top crack of each super "staggered." Have them, say, an inch wide by the width of the hive. When a cool night threatens, go about the hives at dusk, when the bees have abandoned their secondary ventilating cracks, and lay a little slat over each. The bees will promptly seal them on with propolis and they will remain as long as cool weather lasts. If you want to open up all or part of the extra vents again, just take off the little slats. If the weather turns cool, put them back. Thus you can use or dispense with the extra ventilating entrances at any time, without raising up supers and putting the colonies in an uproar.

Port Dickenson, N. Y. Geo. Gilbert.

A package of young bees added to a weak colony will make an otherwise unproductive colony strong enough to store a crop of honey if done in time.

Is Corn Sugar a Dangerous Competitor? On page 237, April Gleanings, W. S. Pangburn mentions the new corn sugar, and wonders whether it will not lower the price of sugar and consequently also that of honey. For the benefit of your readers I will state that I tried 25 pounds of this new sugar in the kitchen last fall and found it to be only

Apiary of J. A. Simmons just established on a plot of ground where grass is not troublesome.

half as sweet as cane sugar, which means that one must use twice as much of it to get the same results. Consequently it costs more than cane sugar. There is no danger of its lowering the price of honey.

Correctionville, Ia. A. F. Karsten.

Choosing an Apiary Site

The illustrations show an apiary site that is desirable and one that has proven not to be, so far as the plot of ground is concerned. The two photos were made the same day, both showing the natural conditions. It often occurs that grass grows faster on a fertile spot than help can be secured to keep it down, and just at a time when the apiarist himself has so much to do that he is unable to look after it. After giving a first thought to the prospects for honey, then water, I look for a plot of ground near by that is too poor or too rocky to grow grass. It is not always possible to find a plot just as I might picture in my mind that I would like to have. But the first one comes nearer to it than any other I have ever secured. My Mexican helper was not an hour cleaning off scattering prickly pear. It has shade and windbreak on the north and west, with scattering trees east and south. I prefer open ground with ventilated covers, in preference to having hives directly under trees.

Sabinal, Texas. J. A. Simmons.

Installing Package Bees

I have a method of installing package bees that gets the queen laying two days sooner at least. I paint the screened sides of the cage with syrup pretty freely to induce as many bees as possible to fill themselves. I then loosen the screen from one side and quietly remove the queen-cage, leaving as many bees as possible in the cage. Next I partly loosen the screen from queen-cage, then shake the bees from the package into an empty shallow super on top of the frames which they are to occupy, and quickly let the queen loose among the scrambling bees before they realize what has happened. Finally I put on the cover and watch them go to work the same as a natural swarm.

Farmington, Del. Harry Selders.

Apiary site being abandoned on account of too much grass. Bees are being moved to a plot of ground where grass does not grow.

Attractive Exhibit at Fairs For a number of years I have been exhibiting honey and bees at our county fairs. This past year I had the bees build a comb of honey in the shape of a large heart, which attracted much attention. After the fair I usually display my honey in one of the store windows in our home town. I believe this

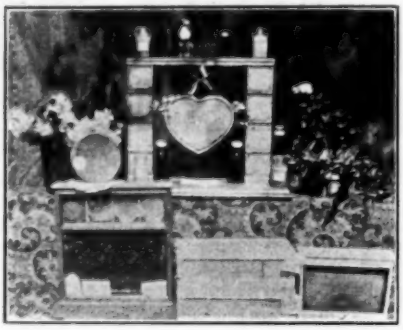


Fig. 1.—An attractive exhibit of bees, honey, and wax at a county fair.

is a great help in the sale of honey near home. As most fairs are held at the close of the honey season it helps remind the public about buying honey.

Fig. 1 shows the comb and extracted honey, beeswax, observation hive, and heart. Fig. 2 shows the heart taken separately which I put up for display. Each exhibit took first prize.

Ilion, N. Y. August Nigabower.

When Queens Are Worthless What is a worthless queen? or, rather, how can one be sure that a queen which is not exclusively a layer of drone eggs is worthless? I once had a colony rear a queen which was so small that I believe she could have passed through any excluder. She had no dignity. She was as active as a boy in mischief. She had just begun to lay when I discovered her. I determined to wring her neck as soon as I had a queen to take her place. But before I got her substitute I changed my mind. She proved to be extremely prolific. At another time I received a queen in a purchased colony. I did not know her age. Her bees were hybrid, almost black. She seemed to be old and exhausted and unable to maintain the population of her hive, though she was not laying a particularly noticeable number of drone eggs. I determined to supplant her as soon as I could spare a better queen. But she saved her life. She girded up her loins and went to work, supplying not only her own colony but others with brood. Please tell us how to identify a worthless queen. E. P. Stiles.

Houston, Texas.

290 Pounds from a Two-pound Package On May 22, 1924, I received a two-pound package of Italian bees with queen, for which I paid $4.00. After being fed with sugar syrup they were placed in a Jumbo hive, which they readily accepted.

In about two weeks the queen was noticed wandering around on the ground in front of the hive, and upon being placed

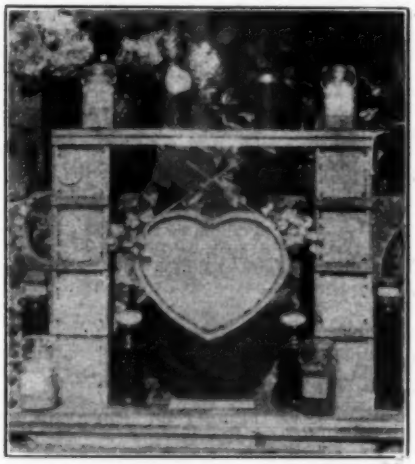
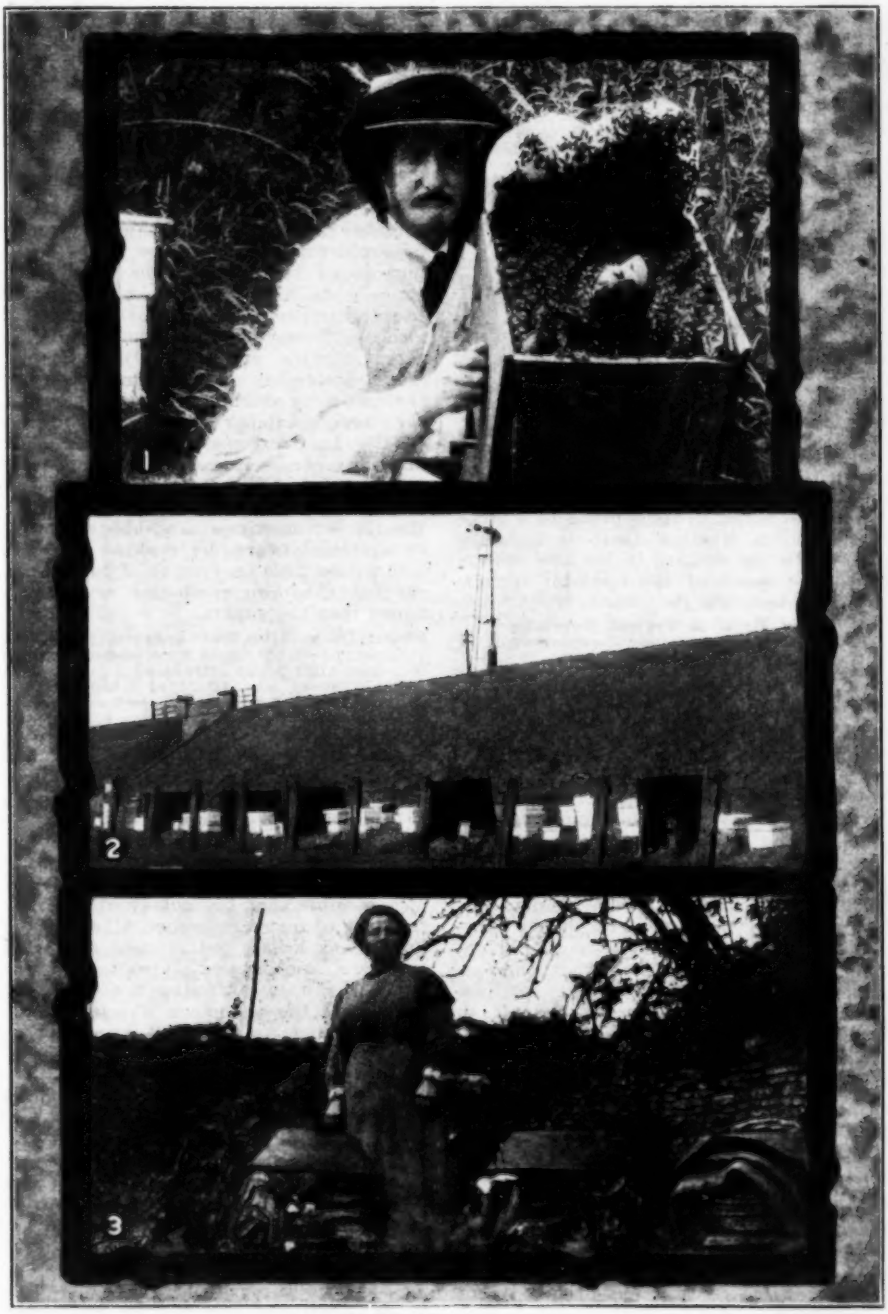


Fig. 2.—The eye-catcher is the large heart-shaped piece of comb honey. Bees can be induced to build special designs—and even spell words in comb honey.

on the floor of the hive just inside the entrance, the bees were seen to push her out again. As she soon appeared to be dead, the county agent was called, and he brought a new queen the next day. Upon examining the frames a queen-cell was discovered, which was cut out, and the new queen was introduced. In four or five days the bees had released her from her cage and she began laying.

For three or four weeks I fed sugar syrup, after which the bees made their own living. Owing to a cold spring the clover did not start yielding till about the middle of July. The nearest sweet clover field was about one and one-half miles from the hive. During the season I obtained 290 pounds of sweet clover honey from this one colony. The bees, extra queen, and total equipment cost $22.03. At times I had one large and three shallow supers on the hive, which the bees fully occupied. As I had had no previous experience whatever with bees, I felt well pleased with the results, and am eagerly awaiting the coming season.

Maza, N. D. Mrs. Louis Kugel.



BEEKEEPING IN ENGLAND

(1) Colquy in a butterbox in swarming condition. The extending comb was built while the bees were transferring themselves to a set of standard frames. (2) Part of a well-sheltered Cotswold apiary. The hurdle shelters are found to be most useful in preventing drifting in early spring. (3) A typical Cotswold skep apiary. The owner seen in the picture takes a personal pride in the well-being of the bee garden.

GLEANED BY ASKING

Geo. S. Demuth

American Foul Brood Treatment

Question.—How long should bees be starved after they have been shaken for American foul brood in order to compel them to use the infected honey in their honey-stomachs?

California. J. B. Stuyvesant.

Answer.—It is neither necessary nor advisable to starve the bees after shaking when they are compelled to build a new set of combs. If the bees are to be given combs instead of being compelled to build new, it is necessary to compel them to use the honey they have in their honey-stomachs when shaken before the combs are given. To do this, some beekeepers confine the bees for 48 hours in cages, then release them on empty combs. Great care should be taken when this is done to prevent death from starvation, since the time this occurs will vary according to the amount of honey the bees take with them. This depends to a large extent upon whether there is a honey flow when the shaking is done, as well as upon the speed of the operator in getting the bees off the combs.

Super Room to Prevent Swarming

Question.—Can swarming be prevented by giving plenty of super room?

New York. Chas. Dalrymple.

Answer.—The giving of ample room in supers as needed greatly reduces the tendency to swarm. In some seasons swarming can be almost if not entirely prevented by careful supering, especially when empty combs are given in producing extracted honey. In comb-honey production, strong colonies may be induced to begin work in several supers at once by placing the new supers between those already started and the brood-chamber during the early portion of the honey flow, thus expanding the super room and bringing about conditions somewhat comparable to those in extracted-honey production. However, it is more difficult to prevent swarming in comb-honey production, and it is not possible to prevent swarming entirely by giving ample super room in either comb-honey production or extracted-honey production. Under some conditions bees will swarm even when ample super room is provided in plenty of time.

Bees Fail to Work in Super

Question.—Why should a large colony try to store all of its honey in the brood-chamber? I put on supers early, but the bees refused to work in them and have jammed the brood-chamber full of honey so there is not enough room to rear brood. W. T. Alexander.

Kentucky.

Answer.—There are several conditions under which colonies persist in storing honey in the brood-chamber instead of in the supers. The usual reason for this is the lack of sufficient numbers of bees, this trouble being common in weak or medium colonies. Another reason for bees behaving in this manner is the character of the honey flow. During a slow or an intermittent honey flow they are inclined to store honey in the brood-chamber instead of in the supers. If there is considerable sealed honey in the upper portion of the brood-combs, this sometimes acts as a barrier between the brood-chamber and the super. There is also a difference in the behavior of different strains of bees in this respect. Some strains are more inclined to crowd the queen by storing too much honey in the brood-chamber. This trouble can usually be overcome by giving a super of empty combs if extracted honey is to be produced. When strong colonies behave in this way in comb-honey production it is sometimes advisable to make an artificial swarm by shaking the bees into a new hive on frames of foundation so that they are compelled to put the honey into the supers.

Swarm Issues After New Queen is Introduced

Question.—What could have caused my bees to swarm after I had introduced a new queen? The old queen was destroyed when the new one was introduced, and in a week or ten days she came out with a swarm.

Illinois. J. J. Melvin.

Answer.—If the new queen was introduced during the swarming season, the colony was probably already preparing to swarm when she was introduced. In such cases the bees go ahead in their preparation for swarming, in spite of the fact that they have a young queen. It is also possible that the colony started the building of queen-cells soon after the old queen was killed and refused to accept the new queen you introduced. This would result in swarming ten or twelve days after the old queen was killed, the swarm being accompanied by a virgin queen recently emerged.

Number of Supers Per Colony

Question.—Is it necessary to have more than two comb-honey supers for each hive when one has time to take off the supers and sort out the finished sections?

South Dakota. J. W. Rodman.

Answer.—During a good honey flow it is often necessary to tier up more than two comb-honey supers on each colony. Sometimes three or four supers will be filled before any of the honey is sealed. In such cases, if only two supers are given much honey would be lost while waiting for the bees to ripen and seal any of it. During a slow honey flow, and especially in an arid climate where honey ripens rapidly, two supers may be enough, but during a rapid honey flow four or

five supers or even more may be necessary in order to prevent loss.

Keeping Sections Clean

Question.—Why is it that some boxes of comb honey are so clean that they look as though they had never been on a hive, while others are badly soiled with propolis? What can be done to prevent this? C. H. Long.
Ohio.

Answer.—During a good honey flow the sections are propolized but little if any. The propolizing is usually done toward the close of the honey flow or after it has entirely ceased. In order to produce comb honey that is clean in appearance it is therefore necessary that the sections be on the hive for the shortest possible time. The supers should be taken off during the honey flow as fast as the honey is sealed, and at the close of the honey flow (in some cases even before) all of the unfinished sections should be removed from the hives before the bees have had an opportunity to propolize them. During a slow honey flow that tapers off toward the close it is sometimes impossible to prevent propolizing. Some of the worst appearing sections of comb honey found on the market are those that were badly propolized at the close of the season, then put back on the hive again the next spring. It is poor policy to use sections that have been ruined by propolizing the previous season, thus having fine new honey stored in the old soiled sections.

Fastening Foundation in Sections

Question.—Is there any advantage other than the saving of material in using two pieces of foundation in each section, a narrow strip at the bottom and a wide strip at the top, leaving a space between? What is this space for?
Connecticut. George I. Jeralds.

Answer.—Under some conditions, especially during a slow honey flow, the comb is fastened to the bottom of the sections better when a bottom starter is used than when a single large sheet is used. However, during a heavy honey flow there is often no advantage in having a bottom starter. There is also a difference in different strains of bees in the manner in which they fasten the combs to the bottom of the sections. Some strains of bees are inclined to leave a space below the comb or make poor attachments at the bottom, while other strains attach the comb well. The reason for the space between the two sheets of foundation is to allow for the expansion and a slight downward stretching of the upper sheet of foundation. If the two sheets were to touch each other the foundation would buckle. This is also the reason for leaving a space at the bottom where a single large sheet is used. About one-eighth of an inch clearance is necessary at the bottom to prevent the foundation from touching and buckling during the process of drawing it out.

Extracting Combs in Comb-honey Supers

Question.—In the production of comb honey is there anything gained by using a frame of drawn comb on each side of the comb-honey super? I intend to use the 4x5x1⅞ sections.
Idaho. C. W. Hall.

Answer.—Comb-honey supers arranged with shallow extracting combs instead of the two outside rows of sections have the advantage of attracting bees into the supers more promptly and, theoretically at least, there should be less swarming when this plan is used. It also does away to some extent with unfinished sections in the corners of the supers, as are often found in regular comb-honey supers. On the other hand, producing both comb and extracted honey in the same super makes the systematic handling in filling and emptying the supers somewhat more difficult. Most comb-honey producers prefer using sections only in their supers, thus simplifying the handling of the honey.

Ownership of Absconding Swarms

Question.—If I follow an absconding swarm to one of my neighbor's decoy hives, what are my rights as to ownership?
New York. Stanley G. Behe.

Answer.—The courts have held that an absconding swarm of bees continues to be the property of the owner even after it leaves his premises, provided he follows the swarm and is able to identify it as his property. In recovering his property, the owner may be compelled to resort to legal methods in order not to be liable for trespass.

Avoiding Useless Consumers

Question.—Is there anything gained by killing the queen when the clover-honey flow is half over, then cutting out cells and later introducing a young laying queen, or should the colony have a queen thoughout the honey flow?
Quebec, Canada. T. McGovern.

Answer.—Colonies that are preparing to swarm can profitably be treated as you outline. However, you evidently have in mind preventing the rearing of brood during the latter part of the clover-honey flow, when the resulting workers would come on the stage of action too late to take part in gathering the crop of clover honey.

In localities having a fall honey flow coming at such a time that the workers resulting from the eggs laid during the latter part of the early honey flow would help gather the fall crop, it would be best to keep a laying queen in the hive throughout the season. In localities having a dearth of nectar after the close of the early honey flow the plan you mention works out well. In those portions of the clover region where there is no dependable fall honey flow, killing the old queen at the right time on the approach of the close of the honey flow should result in the saving of stores, but usually brood-rearing is naturally reduced at this time anyway.

TALKS TO BEGINNERS

Geo. S. Demuth

Those who followed the advice given in this department last month in regard to supplying the bees with an abundance of food (if not already in the hive) during the month of May, and giving an extra story of dark combs to all colonies strong enough to occupy them, should have strong colonies for the June honey flow. Those who failed in either respect may not be so fortunate, for if colonies were permitted to run low in food at a time when they could not gather from the fields they may have been compelled to cease brood-rearing and even tear out some of the brood already started; and if colonies were not given more room than they needed during the month they may have swarmed and upset the plans of the beekeeper to a large extent.

How to Recognize the Beginning of the Honey Flow

Where the main honey flow is expected to begin this month, close watch should be kept for its beginning. When it begins the bees will be noted working with greater vigor and new honey can be seen in the open cells within the hive. Almost immediately the bees begin to elongate some of the cells in the upper portion of the comb with white wax, which suggests at once the need of more room. The colony also suddenly expands its activity so that bees occupy the remote parts of the hive if the colony is strong. When these symptoms of the honey flow are present, it is usually time to give the first super, and from this time on until the close of the honey flow the two outstanding things in the care of the colonies are the giving of new supers as fast as needed and the prevention or control of swarming. In the white clover region the honey flow usually begins about 10 days after the appeareance of the first white clover blossoms in the open.

Management of Supers for Extracted Honey

Colonies that were given a second story three or four weeks previous to the opening of the main honey flow should be given a third story at the beginning of the honey flow, if not before, when extracted honey is to be produced. When this is done the queen should be put into the lower story and confined there by a queen-excluder. Since the queen is liable to be working in the second story at this time, it is well to set it from the hive, placing it on an extra bottom-board, and look through it to find her. When found she can be lifted by the wings and placed in the lower story. The queen-excluder should then be put in place and a super containing empty combs, if available, should be placed directly over the excluder and the former second story placed on top as a third story. If empty combs are not at hand so that frames of foundation must be used, it is sometimes well to put half of the combs from the former second story into the new story to be added, then fill out each of the two upper stories with frames of foundation. A few days later it is well to exchange places of the frames of foundation that are drawn out with those which are not drawn out. Nine or ten days after confining the queen to the lower story it is well to examine the combs of brood above the excluder for queen-cells, destroying any that may be found. As the brood above the excluder emerges, the vacant cells will be filled with honey if the honey flow is good.

In some seasons the giving of this third story supplies enough room to hold the entire amount of surplus honey that is gathered, while in others several additional supers may be needed to hold the crop. In some localities, especially in the irrigated regions of the West, additional room can be given during the honey flow by taking out combs of sealed honey, extracting the honey from them and returning the empty combs, but in the eastern portion of the country it often happens that the bees will fill three or four full-depth supers before any of it is ripe enough to extract. In such cases new supers are given as needed and all are left on the hives until the honey is thoroughly ripened. In giving additional extracting supers, each new super should be given as soon as new honey is found in the outside combs to any extent, if the bees are gathering rapidly. If they are gathering slowly the outside combs may not be filled with honey until after the center combs are ripened and sealed.

Management of Supers in Comb-honey Production

When comb honey is to be produced the hive must be reduced to one story at the beginning of the main honey flow. If the upper story is nearly filled with honey it may be raised up and the comb-honey super placed between the two stories for a few days. The upper story must then be taken away entirely, since if it were left the bees would use some of the dark wax from the old combs above in the building of the combs in sections.

When reducing the hive to one story the combs should be sorted, leaving most

of the brood with the colony and taking away combs containing the most honey and empty combs if any. By leaving the oldest brood, this will soon emerge, thus giving room for the queen to lay. The extra combs containing honey and some brood should have the bees shaken off at the entrance of the hive or on top of the frames, then they should be put back into the hive body to be given to a weaker colony, if there are any such, which is not to be used for comb-honey production. Several such hive bodies of extra combs of honey and brood may be tiered up on a single weak colony. A queen-excluder should be put on the brood-chamber before these extra hive bodies are tiered up to prevent the queen from going above, since these combs are to be be filled with honey. If the season is good these combs will be filled after the brood has emerged, thus furnishing a large reserve of honey to be distributed to the colonies after the comb-honey supers are taken off at the close of the season, thus again making them two stories high.

Those who have but one colony can use the extra combs that are taken away to make increase, provided there is a considerable amount of brood in the combs. In this case the bees should not be shaken from the combs and care should be taken to be sure that the queen is in the other hive. The extra story is provided with a bottom and cover and placed on a new stand. Unless queen-cells are available to give this new colony, it is best to purchase a laying queen and introduce her to it. If no increase is desired, this extra hive can be set close beside the original hive and the two united at the close of the honey flow after the comb-honey super has been taken off.

When to Give an Additional Comb-honey Super

Giving additional supers during the honey flow at the right time is sometimes a difficult problem. In some seasons a single super will hold all of the surplus the bees are able to store. When this is true a second super need not be given. During other seasons it may require several supers to hold all of the honey the bees can store, and if these are not added as fast as needed the greater portion of the possible honey crop may be lost for want of room to store it. In some seasons the honey may be stored so slowly that it takes the bees a month to fill one super, while in other seasons they may fill a super within three or four days. Again, there is a great difference between colonies of different strength. During a good season a strong colony may need a new super every week or oftener, while a weak colony may require three or four weeks to fill one super.

A good rule to go by is to give a new super as soon as the bees have drawn out the foundation in the sections in the outer rows. During a heavy honey flow a strong colony may draw out the foundation in all of the sections within a few days, in which case the second super should be given. On the other hand, under some conditions some of the honey in the middle of the super will be sealed before work is begun on the outside sections. In this case the second super need not be given until the bees begin build ing combs in the outside row.

If the bees are storing rapidly the first super should be raised up and the new one placed between it and the brood-chamber. On the other hand, if the bees are storing slowly it is well to put the second super on top. If the bees begin work in it, showing that more room is needed, it can then be placed below the other super.

In order to encourage the bees to finish the first super promptly some prefer keeping it in position as the second from the brood-chamber until it is finally finished. When more than two supers are given, those which are partly filled are each in turn transferred to the new position above the one nearest completion.

When supers containing empty combs are given as fast as the bees need more room during the honey flow there is much less tendency to swarm than when comb honey is being produced or when frames of foundation are given in the upper story. In the North, a large percentage of the colonies used for comb-honey production will swarm, or at least attempt to swarm, in the midst of the honey flow. This often happens just at the time when the bees are working best in the supers, and unless the swarm is properly handled the sections already started will not be finished. However, by hiving the swarm in a new hive placed on the old stand and transferring the supers from the old hive to the new, the bees are soon back at work in the same set of supers they were a few minutes before so eagerly deserting. The directions for doing this were given in the Talks last month. The parent hive should be turned aside while the swarm is out so that none of the bees will return to it; then after the swarm has returned and hived itself in a new hive the parent hive should be turned back toward its former position, and in a day or two should be placed close beside the new hive. Then on the seventh day after the swarm issued it should be carefully moved to a new location not close to another hive, so that the young bees that have learned to fly during the week will join the swarm on the old stand.

JUST NEWS
Editors

A new foul-brood law for North Dakota goes into effect July 1. This is House Bill 112 and provides $1000 for bee-inspection work in the state.

* * *

Miss Malitta D. Fischer has resigned as secretary of the Wisconsin State Beekeepers' Association in order to devote her entire time to her Honey Tea Room in Madison.

* * *

The regular summer meeting of the North Dakota State Beekeepers' Association is to be held at Devils Lake, North Dakota, the latter part of June, the exact date not yet having been announced. This can no doubt be had by writing to R. L. Webster, Fargo, North Dakota.

* * *

W. J. Sheppard, Secretary of the British Columbia Beekeepers' Association, states that British Columbia has a net weight law which applies to both extracted honey and comb honey. On our "Who's Who" page in the May issue these items were left blank on account of incomplete information.

* * *

Prof. N. E. Phillips, professor of apiculture at Pennsylvania State College, has resigned that position in order to take up commercial honey production in New York State with headquarters at Cazenovia. Prof. Phillips is a brother of Dr. E. F. Phillips, professor of beekeeping at Cornell University.

* * *

Harry Lathrop, a well-known beekeeper of Wisconsin, is visiting and studying beekeeping conditions in England, Ireland, and Scotland, having sailed from New York on April 25. He expects to visit the more prominent beekeepers in each of those countries, as well as the editors of the various bee journals published there.

* * *

B. F. Kindig, director of apiary inspection for Michigan, is establishing stations at various points for sterilizing combs containing American foul brood by means of the Hutzelman Solution, this being a part of the area clean-up plan. This will afford an opportunity for beekeepers in the territory to bring diseased combs to the station to be sterilized at a moderate cost.

* * *

The Iowa foul-brood law has been revised, the new law to take effect on July 1. As was the case with the old law, the new law, in setting forth the duties of the state apiarist, emphasizes the educational features of his work rather than his police powers in inspection. Provision is made for quarantining areas in which clean-up work is being conducted or which have been declared free of the brood diseases.

* * *

Bulletin No. 385 of the University of California, College of Agriculture, Agricultural Experiment Station, entitled "Pollination of the Sweet Cherry," by Warren P. Tufts and Guy L. Philp, is of interest to beekeepers in that it recognizes the value of the honeybee as a pollinator. In connection with the pollination of sweet cherries the authors say, "Since the common honeybee is by far the best carrier of pollen, it will pay the grower to keep bees, although he may not care to go into the honey business."

* * *

The report of the Seventh International Congress of Beekeepers which was held in Quebec last September has gone to the press and will no doubt soon be ready for distribution. This volume is to be sold at $2.00 per copy, or $2.25 postpaid. Beekeepers' associations that desire a number of copies for their members will be given a special price. M. C. Vaillancourt, Department of Agriculture, Quebec, Canada, apiculturist for the province of Quebec, has charge of the distribution of this book.

* * *

The Minnesota State Fair offers premiums amounting to $540 for displays of honey this season. These exhibits will be in glass cases, each having a floor space approximately five by eight feet. At these exhibits especial attention is being paid to making the exhibits so attractive that they will compel attention. The exhibits will be seen by about 500,000 visitors during state fair week, thus affording considerable opportunity for advertising honey.

* * *

The Iowa State Beekeepers' Association has granted a scholarship amounting to $120, which will be given to any boy over seventeen who has not completed high school, but who is desirous of going on with some college work. In granting this scholarship the interest of the contestants in beekeeping will be taken into consideration, the awards being made on a prize essay on honey, this essay not to be more than 2000 words in length. All of the essays must be submitted by August 1 and the award will be made about September 1.

BEES, MEN AND THINGS
(You may find it here)

"White, alsike, and red clover blossoms were seen in the fields today (May 12). Was it ever earlier?"—Sproson Wilson, Fountain County, Ind.

"I find it a good thing to pull back the inner cover about an inch or 'stagger' the supers to prevent swarming."—W. A. Hayden, Champaign County, Ohio.

"In transferring a colony of bees from a box hive I took out combs that were two feet long and twelve inches wide. They were two-thirds filled with honey."—Wm. Rimling, Alleghany County, Pa.

"Wisconsin honey is the finest I have ever tasted. It eclipses California orange honey, and white-sage honey bears no comparison to our beautiful snow-white comb honey that always tops the Chicago and Milwaukee markets."—Wm. E. Kittinger, Racine County, Wis.

"There has been a decided improvement in the honey market this year over previous years, no doubt due to the stabilizing effect of the Ontario Honey Producers' Co-operative, about 85 per cent of the producers having signed up."—Alex Snetsinger, Ontario.

"I now have my bees among the oranges. In talking with J. D. Bixby we have concluded that we shall have but a half crop or less from the orange blossoms. The weakened condition of the colonies and bad weather are the causes of the short crop."—M. H. Mendleson, Ventura County, Calif.

"On the second day of January I saw a queen come out of the hive and make several attempts to fly. I caught her and placed her in the entrance and she went in. I have kept bees over 40 years and have never seen a queen fly in the winter before."—A. M. Brown, Taylor County, W. Va.

"Although Carniolan bees have a bad reputation on account of swarming, I am trying them this year for comb honey. I am trying them in Jumbo hives to see what they will do, since it is claimed that swarming is easier controlled in large hives."—G. S. Dickson, Henry County, Tenn.

"For out-apiary work the Danzenbaker frame is better than Langstroth frames spaced eight or nine to the super, on account of transportation. Why not make the end-bars wider so eight or nine frames fill a super for either brood or extracting combs? The standard brood frame is an ideal one for uncapping."—J. H. Fisbeck, St. Louis, Mo.

"Zane Grey, in his story, 'The Bee Hunter,' makes his hero tell the heroine that the little balls that the bees carry on their legs are wax that they use in making combs. If this is true I have read my A B C and X Y Z wrong."—J. L. Hood, Marshall County, W. Va.

"I wonder where is the largest apiary in the world as to number of colonies kept. I once kept 900 to 985 colonies here in one apiary for 16 months and secured my average harvest of honey. I have read Gleanings for 35 years and am not quite 70 years old yet."—J. M. Herman, Maricopa County, Arizona.

"My favorite method for introducing queens is to remove the paper on the shipping cage and place the cage on top of brood frames. At the end where the candy in the cage is exposed, I place a block of wood so as to close the cage. At the end of 48 hours I remove the block, thus giving access to the candy. By this method I have never lost a queen."—E. W. Fox, Iredell County, N. C.

"Beekeeping in Greece, although as ancient as Homer and fully thriving already under Solon the Law-giver, about 2400 years ago, still can not boast of having attained great progress. Users of modern hives are counted on the fingers and the bulk of beekeepers are uneducated peasants as stubbornly objecting to progressive methods as all uneducated people have always been in any country."—N. J. Nicolaidis, Piraeus, Greece.

"The most common cause for the start of an ordinance against beekeeping is a neighborhood quarrel. One neighbor has a yard full of ducks, rabbits, or goats. The beekeeping neighbor makes a complaint and the goat neighbor comes back against the bees. Don't let it get started. If it should start, see members of the council and explain how useful bees are."—Cary W. Hartman, Alameda County, Calif.

"I expect to try producing chunk honey in Hoffman frames, since I am too busy with other work to work for comb honey. I wish we could have a co-operative honey establishment like a creamery so we could take in the finished supers and receive a check for them as farmers receive their cream check. A co-operative could have an outfit to do the work in preparing the honey for market by machinery. Probably this will come in time, since specialization is the rule of civilization."—F. A. Graham, Emmet County, Mich.

A. I. Root's Story of His Own Life

He spake of trees, from the cedar tree that is in Lebanon, even unto the hyssop that springeth out of the wall; he spake also of beasts, and of fowl, and of creeping things, and of fishes.—I. Kings 4:33.

In 1877 I was in quite a quandary about queens that would not lay until they were three or four weeks old. I had some that did not begin until four months old, but at this time the weather had been so dry that even old queens stopped laying, and I could not make them commence again except by feeding ten days or two weeks. This was nothing very unusual for fall months, but many of the young queens would lay only a few eggs and then stop, while others seemed to keep on laying, although the eggs never produced larvae. At first I feared they would prove drone-layers, but several of them, under the influence of steady feeding every day, had nice patches of sealed worker brood. Some colonies had no pollen, but these reared brood promptly when I fed them flour candy.

Drone Eggs in Queen-cells

Eggs laid in drone cells always produce drones, no matter where they may be grafted, unless they are put into a queen-cell, in which case the poor drone flourishes finely for a while and then dies—perhaps from too much rich food.

Branding Queens

In the July number, 1882, nitrate of silver was suggested for staining the wings of queens to mark them for special purposes. This looked quite feasible to me, for nitrate of silver is the base of indelible ink. So long as the wing remained the queen could readily be identified. I proposed staining one wing when the queen first began to lay, then the other one when she was a year old, thus a fair record of her age could be kept.

Bee-veils With Glass Fronts

In the 70's we made bee-veils with glass, but my objection to them was that the glass would soon get sticky and dim, so that it was harder to see through than the silk lace. Besides, even when kept washed and clean, the reflection of the glass was to me quite a hindrance when looking for eggs.

Chemical Smoker

Among the advertisements in the British Bee Journal for June 24, 1886, I saw Webster's fumigator. The advertisement stated that it entirely superseded the smoker, and that there was no danger of its going out as no fire was used. The chemicals used were carbolic acid, oil of tartar, and water, properly mixed. A bottle of the mixture, enough to last two seasons, was listed for six pence. This had been discussed and experimented on before, although no one had thought of using carbolic acid. I immediately ordered a fumigator and an extra bottle of the mixture to test. When we came to test it we found that, while it would drive the bees to some extent, it was not nearly as good as smoke.

Where the Freshly Gathered Nectar is Placed

Someone a good while ago said that bees which gather the nectar never carry it up into sections, but that they just take it inside the hive and deposit it in the first empty comb they come to, leaving the nurse bees to transfer it out of the way and put it into supers, or wherever it belongs.

Years ago the honey from basswood was coming in great floods. Someone called me just when I was putting some empty combs back into the hive after extracting them. This hive happened to be the old style American hive with an open side. Well, these combs were put just inside the hive without being moved up into place and the open side was leaned up against them. I did not have time to put it in place and turn the button. The bees were working heavily and the entrance was pretty well crowded. When I came back half an hour later, the incoming laden bees had found the opening and were going in there because it was a shorter cut. The outside comb that was not moved up against the rest of them contained quite a little freshly gathered nectar. The workers were so eager to find a place to put it that they simply put it on the outside of these empty combs.

That same season someone was guilty of leaving some pieces of comb on the alighting board of a hive. The honey came in so rapidly one day that I saw quite a lot of honey sparkling in the cells of this old neglected dry comb. In their haste the workers had evidently dumped it down there and hustled off to the fields for more.

The honey-gatherers, at least sometimes, drop their thin watery nectar into the very first bit of comb that comes

handy. It would seem quite natural that even this hastily deposited nectar should be evaporated more or less before it is moved back into the hive or up into the sections, but I do not know this for a fact.

Preventing Bees from Clustering on the Outside of the Hive

I have been repeatedly astonished at the amount of room a colony will occupy to advantage during extremely hot weather. I once gave a very heavy colony a full set of empty combs, yet on the second day the bees persisted in hanging on the front of the hive. Then I gave a set of section boxes, but they were very soon out again; so, as an experiment, I leaned a couple of empty hives against the hive just over the cluster. It rained during the night, and finding the combs filled with what I supposed was rain water, I struck them against the posts to remove it, but to my astonishment I found it was honey. Although these bees would not work inside the hive they had very quickly filled the combs on the outside. I took the hint and gave additional upper stories of comb, more shade and ventilation, and was much gratified to find that I could get the bees inside the hive and at work without fail if I only had enough empty combs. Comb foundation does the same thing partially, and perhaps entirely, if the bees can be induced to start work on it.

Drying the Moisture Out of Honey

In 1874 I had two barrels of basswood honey, and to keep it from granulating I took it to the store and put it near the furnace. In spite of this, however, it soon began to granulate. Quite a while later one of the barrels was opened and a few dozen jars filled with the honey. As the part that was the least granulated was easiest to get out the granulated part was left over on one side. One day the remarkable whiteness of this attracted my attention and I put a plateful in the glass showcase. This honey had been getting whiter and whiter, and as I looked at it the pearly blocks sparkling in the lamplight were more beautiful even than the plates of comb honey. This honey melts in one's mouth like delicious confectionery, and even old beekeepers do not recognize it as honey. This same beautiful honey can be done up in paper packages or put into boxes and it is not sticky a particle. Just think of running the honey into barrels, putting it where it would granulate quickly, then rolling it over and letting the liquid portion with the coloring matter all drain out; after that lay the granulated part on shelves to dry, and then put in boxes. It may even be dried in an oven to expel all the water. Of course, the heat must not be great enough to melt the honey. In this shape it may be kept for years, even done up in a paper like sugar.

The Great Crop of Honeydew Honey

On Sunday, August 17, 1884, just as I reached home after Sunday school a light shower came up, just enough to wet the leaves of the trees so the rain would drip from them slightly. As we had had no rain for some time this was just enough to moisten the honeydew that had dried down on the leaves. Scarcely had the drops ceased falling when my attention was called to a regular stampede of the bees from my apiary of over 400 colonies. Had each colony been suddenly taken with a mania for robbing some other colony, they could hardly have piled out at a more rapid rate. The air over our house and at each side of it was literally black with bees, and the roar sounded like a small tornado.

In a little time a heavier roar set in, caused by the heavily laden bees returning, and the way they dropped around the entrances showed conclusively that they had heavy loads. I watched with much interest to see how it would turn out, when another shower came up from the east while the bees were still going in a regular stampede westward after the honeydew. The shower moved so slowly and they were so busily employed on the foliage of the forest trees that they paid no attention to it. The result was that we had a pretty heavy rain at the apiary while the inmates of this large number of hives were almost all of them a mile or more away from home. I said there would be a scene pretty soon. Sure enough, we could see by the raindrops spattering in the dusty road about how fast the shower progressed; and when it reached the woods, the bees, as I expected, began to come tumbling home through the rain pellmell. I was surprised to see them hold out as well as they did. Occasionally some heavily laden bee or perhaps a weak flyer would be brought to the ground by the raindrops; but most of them reached their hives and crawled into the entrance more like drowned rats than respectable honey-gatherers. I was wondering whether any of them would have the croup or get a sore throat, but in half an hour more, after the rain was past, they were out again, working almost as vigorously as they did at first; but I presume they felt a little bit disgusted when they arrived at the scene of their former hunting grounds to find the heavier shower had not only moistened the honeydew, but had washed it clean from the leaves and soaked it into the ground.

The honeydew that they gathered from this aphis secretion was not very dark, nor unpleasant to the taste.

Classified Advertisements

Notices will be inserted in the classified columns for 7c per word. You must say you want your advertisement in the classified columns, or we will not be responsible for errors. For special conditions on bee and queen advertising please write us. Copy should be received by 15th of preceding month to insure insertion. Cash with copy if credit has not been established previously.

REGULAR ADVERTISERS DISCONTINUED IN GOOD STANDING.

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D. R. Townsend, H. G. Quirin, C. H. Hodgkin, F. L. Barber, Holloway Bros., W. M. Pencock, D. T. Gaster, W. E. Buckner, E. E. Salge & Bros., Middle Tennessee Apiaries, P. M. Williams, L. C. Mayeux, John St. Romain, J. J. Wilder, Madison Cooper, General Laboratories, Colonial Poultry Farms, Hall & Scott, E. J. Beridon, Jr., Geo. A. Hummer & Sons, Central Louisiana Apiaries, W. O. Victor, N. L. Stapleton, Jul. Buegeler, H. E. Graham.

HONEY AND WAX FOR SALE

FOR SALE—Comb honey, $3.50 per case. L. R. Marsalek, Cadams, Nebr.

HONEY LABELS—New design. Catalog free. Eastern Label Co., Clintonville, Conn.

720 pounds clover honey in 5 and 10 lb. pails, 10c. Chas. E. Schneider, Irvington, Neb.

HONEY for sale, any kind, any quantity. The John G. Paton Co., 217 Broadway, New York City.

FOR SALE—Pure extracted honey, dark, in 60-lb. cans, at 8c per pound. Gilbert J. Sergeant, Sodus, N. Y.

FOR SALE—Comb and extracted white clover honey. Prices on request. Dr. E. Kohn & Son, Grover Hill, Ohio.

FOR SALE—Extracted, comb and chunk honey. Prices on request. Sample 15c. F. W. Summerfield, Waterville, Ohio.

HONEY for sale in 60-lb. tins, clover crystallized, at 13c per lb.; clover liquid at 14c per lb. Hoffman & Hauck, Inc., Ozone Park, N. Y.

FOR SALE—White honey in 60-lb. cans, also West Indian in 50-gallon barrels. Samples and prices on request. A. I. Root Co., 16-18 Jay St., New York City.

FOR SALE—A few cases of amber honey, two 60-lb. cans at 8c per pound; light amber, 10c. Sample, 15c. R. L. Tucker, Uniontown, Ala.

RASPBERRY and milkweed, two of the best honeys of northern Michigan, blended. In 10-lb. cans by mail, postpaid, for $2.50 a can. Elmer Hutchinson & Son, Lake City, Mich.

HONEY AND WAX WANTED

WANTED—A car or less quantity of clover honey in 60-lb. cans. Mail sample and quote lowest cash price for same. A. W. Smith, Birmingham, Mich.

WANTED—White clover comb and extracted honey. Write me as soon as you have some to take off, giving price, etc. John N. Prothero, DuBois, Pa.

WANTED—Clover and raspberry honey, comb and combless. Give description, quantity and best price delivered here. E. W. Peirce Co., 28 W. Main St., Zanesville, Ohio.

BEESWAX WANTED — Highest market prices paid. Cash or in exchange for supplies. Write us for quotation before shipping elsewhere. The A. I. Root Company, Medina, Ohio.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co., Pearl and Walnut Sts., Cincinnati, Ohio.

OLD COMBS WANTED—Our steam wax presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our 1925 catalog. We will buy your share of the wax for cash or pay you a little more in exchange for foundation or supplies. Dadant & Sons, Hamilton, Ill.

FOR SALE

FOR SALE—Standard hives, $2.00. L. F. Howden, Fillmore, N. Y.

FOR SALE—Good 60-lb. cans, two in a case, 30c a case; $25.00 per 100. I. J. Stringham, Glen Cove, N. Y.

MAKE queen introduction SURE. ONE SAFIN cage by mail, 25c; five for $1.00. Allen Latham, Norwichtown, Conn.

FOR SALE—Extracting and comb honey supers and numerous other supplies. H. Shaffer, 2860 Harrison Ave., Cincinnati, Ohio.

FOR SALE—Root 8-frame power extractor and gas engine, practically new. A. G. Woodman Co., Grand Rapids, Mich.

FOR SALE CHEAP—Good 60-lb. honey cans, two to case, used once. S. T. Fish & Company, 163 W. South Water St., Chicago, Illinois.

WONDERFUL collection of beekeeping literature for sale. Will sacrifice. Write for particulars. Louis A. Loboda, 1301 Fifth Ave., Milwaukee, Wis.

FOR SALE—200 combs, 9⅛x17⅝, drawn from full sheets of foundation, guaranteed disease-free, 25c each. Lester G. Hoblin, 1031 56th St., Brooklyn, N. Y.

FOR SALE—Root "QUALITY" bee supplies. Buy Root goods and get the best by test. A catalog for the asking. A. M. Moore, 22½ S. 3d St., Zanesville, Ohio.

ROBINSON'S comb foundation will please the bees, and the price will please the beekeeper. Wax worked at lowest prices. E. S. Robinson, Mayville, N. Y.

FOR SALE—50 eight-frame Excelsior covers, new, 50c each; 50 eight-frame reversible bottoms, new, 40c each The Silsbee Apiaries, Bath, R. F. D. No. 1, N. Y.

TRY REXFORD'S Push-in-Comb introducing cage. Safe, automatic. No opening hive necessary after queen is in. Room for all combs. 35c, 3 for $1.00. O. S. Rexford, Winsted, Conn.

FOR SALE—Second-hand 5-gallon cans. Only good cans offered. Two cans each case. Per 10 cases, $6.50; per 25 cases, $15.00. Ask for prices on quantity lot. A. I. Root Co., 230 W. Huron St., Chicago, Ill.

FOR SALE—New and used 4 x 5 comb-honey racks, fences, and queen-excluders. One Rotospeed, prints your circulars at small cost. Send for information and prices. Appeldoorn, Hamler, Ohio.

FOR SALE—300 lbs. Dadant's light brood foundation. Standard size. 60c per pound. Rockward Nusbaum, Uniontown, Md.

FOR SALE—We accumulate from time to time beehive and beekeeping material, slightly shopworn or not regular pack, which we can sell you at attractive prices. Write for list. Dadant & Sons, Hamilton, Ill.

FOR SALE—Good second-hand 60-lb. cans, two cans to a case, boxed. We have large stocks of these on hand. Please write for prices if interested. We are offering only good cans and good cases. C. H. W. Weber & Co., Cincinnati, Ohio.

FOR SALE—100 3-frame nuclei with young Italian queens. We are offering these as we bought more than we can handle this season. They will be shipped from one of the largest shippers of bees in the South and can make immediate shipment. All on wired combs. Guaranteed free from disease. $350 for the lot, or $3.75 each in less than 25 lots. The Silsbee Apiaries, Bath, R. F. D. No. 1, N. Y.

BEES AND QUEENS

WHOLE colonies of bees, if advertised for sale in these columns, must either be guaranteed free from disease, or, if not so guaranteed, the exact condition of the bees and the conditions of sale must be clearly stated in the advertisement; or, it will be satisfactory if the advertiser will agree to furnish a certificate of health from some authorized bee inspector at time of sale.

HARDY Italian queens, $1.00 each. W. G. Lauver, Middletown, Pa.

PACKAGE BEES—Circular free. Van's Honey Farms, Hebron, Indiana.

YOU will be pleased with my queens. Write for June prices. R. V. Stearns, Brady, Texas.

TEN COLONIES of Italian bees, guaranteed free from disease. Price $60.00. Glenn R. May, Bloomington, R. F. D. No. 2, Indiana.

BOOKED TO CAPACITY on packages. WHY? Order a queen and find out. $1.00 each; 6 for $5.00. J. J. Scott, Crowville, La.

HOLLOPETER'S ITALIAN QUEENS. Ready June 1. Untested, 1, $1.25; 6, $7.00; 12, $13.00; 25, $24.00. J. B. Hollopeter, Rockton, Pa.

BRIGHT Italian queens, 1, $1.00; 12, $10.00; 100, $75.00. Write for prices on package bees. T. J. Talley, Greenville, R. F. D. No. 3, Ala.

FOR SALE—Bright Italian queens, $1.00; 6 $5.00; 1-lb. package bees with queen, $3.00; 2-lb. package with queen, $4.50. Powell Owen, Greenville, Ala.

ONE 2-lb. package bees with queen, $3.75; 3-lb., $4.50. Larger the order, better the price. Tested queen, 50c extra. Established in 1909. Have no disease. F. M. Morgan, Hamburg, La.

THREE-BANDED stock, queens, $1.00 each; 6 for $5.00; 12 for $9.00. All rush orders sent to Walker & Son, Vidalia, Ga., Box 354, from now on. Curd Walker, Jellico, Tenn.

GOLDEN ITALIAN queens for sale, 1, $1.00; 6, $5.00; 12, $10.00; 100, $75.00. Package bees in season, 20 per cent to book your order for spring delivery. J. F. Rogers, Greenville, R. F. D. No. 3, Ala.

BRIGHT American Beauty Italian queens and bees. One trial and you will order more. Select untested, $1.00 each; three to six, 85c each; seven or more, 75c each. Orders shipped promptly. Tupelo Apiaries, J. L. Morgan, Apalachicola, Fla.

LEATHER-COLORED Italian queens, $2.00 until June 1; after, $1.00; tested, $2.00. A. W. Yates, 15 Chapman St., Hartford, Conn.

SHE-SUITS-ME queens. Untested 3-banders, $1.00 each; 25 or more ordered in advance, 75c each. Safin cage with initial order. Allen Latham, Norwichtown, Conn.

GOLDEN ITALIAN queens, producing large beautiful bees, solid yellow to tip. Package bees, nuclei circular, 1925 ready, free. Dr. White Bee Co., Sandia, Texas.

150 COLONIES good Italian bees, guaranteed free from disease, on wired combs and new crop honey. Come and see them, then you set the price. Must be sold. Geo. J. VandeVord, 602 Volusia Ave., Daytona, Fla.

AGAIN our northern-bred leather-colored Italian bees have wintered fine, and we guarantee that no disease exists in our yards. Queens after June 15, $1.25 each; $12.00 per doz. Charles Stewart, Johnstown, N. Y.

FOR SALE—Some fine Golden Italian queens, untested, $1.00 each; tested, $2.00 each. Queens ready May 20. Satisfaction guaranteed. J. F. Michael, Winchester, R. F. D. No. 1, Ind.

LEATHER-COLORED three-band Italian bees and queens bring home the honey and make happy bee men. See our ad on page 401. J. M. Cutts & Son, R. F. D. No. 1, Montgomery, Ala.

C. W. PHELPS & SON are still producing the famous Phelps' Golden Queens. PROLIFIC, GENTLE and very BEAUTIFUL. $2.00 each; 6 for $10.00; $18.00 a doz. C. W. Phelps & Son, Binghamton, N. Y.

BUY from shipper farthest north. Order now for spring. Three-frame nuclei, with tested queens, $4.50 each. Best stock, no disease. 20 years' experience with satisfied customers. S. G. Crocker, Jr., Roland Park, Baltimore, Md.

FOR SALE—Bright leather-colored queens. Bees none better. Write for prices. Also will have some bees by the pound for sale in 1925. Get price and place orders early to insure getting when wanted. M. Bates, Greenville, R. F. No. 4, Ala.

FOR SALE—Three-band Italian queens that produce hardy and gentle bees, the kind that get the honey. Ready to mail May 20. Untested, $1.00 each; 6, $5.50; 12, $10.00. Tested queens, $2.00 each. Safe arrival and satisfaction guaranteed. Robt. B. Spicer, Wharton, N. J.

PACKAGE bees and three-band Italian queens that please. Our 20 years' experience here in selective breeding of queens and the shipping of bees are at your service. No disease in this section. For prices and reference, write Allenville Apiaries, Allenville, Marengo Co., Ala.

125 SWARMS of bees, prospective honey crop. Only one crop failure in 60 years. $500 first payment, balance easy yearly terms. Fine clover for 1925 crop. Factory-made extracted equipment for 225 swarms. Best buy in 1925. State health guarantee. Write or wire for description. C. D. Townsend, St. Johns, Mich.

ITALIAN QUEENS — Leather-colored or three-band. Highest quality at rock bottom prices. Guaranteed to please you in every way or your money refunded. One, 80c; 6, $4.65; 12, $9.00; 25, $17.50. Virgins, 30c. Tested, $1.60. State inspected. Orders solicited. Crenshaw County Apiaries, Rutledge, Ala.

SUPERIOR THREE-BANDED LEATHER-COLORED ITALIAN QUEENS BY RETURN MAIL. Selected untested, 1-9, 65c; 10-49, 60c; 50 and up, 55c. Selected tested, 1, $1.25; 12, $12.00. Guarantee safe arrival, satisfaction, no disease, ship only the best. Queens to please or your money back. W. C. Smith & Co., Calhoun, Ala.

WARRANTED pure-mated Italian Queens, $1.25 each. Will be ready to mail in my sure introducing cages by May 15. No black or hybrid bees around here, so my queens will be mated with pure Italian drones. Daniel Danielsen, Brush, Colo.

THREE-BAND Italian bees and queens, 2-lb. package with untested queen, $4.50; 1 untested queen, $1.00; $10.00 per doz.; 1 tested queen, $1.50. My motto is quality. No disease, safe arrival and satisfaction guaranteed. J. Allen, Catherine, Ala.

FOR SALE—Golden Italian queens, untested, $1.00 each; 6 for $5.40; 12 or more, 80c each. Tested, $1.50 each; select tested, $2.50 each. Apiary inspected and no disease of any kind found. Safe arrival and satisfaction guaranteed. Sam Hinshaw, Randleman, N. Car.

IF you want good bright Italian queens by return mail, send your order to us. Queens, 75c each; $8.50 per dozen; one pound of bees, with queen, $3.00; two pounds of bees, with queen, $4.75. We pay charges. Graydon Bros., R. F. D. No. 4, Greenville, Ala.

SCOTT QUEENS FOR 1925—Our high-grade queens will be ready about June 1. These queens are bred for heavy honey production. They get big crops for us and will for you. They are gentle, too. Three-banded only. One, $1.50; six, $8.00. Circular free. The Scott Apiaries, La Grange, Ind.

COMBLESS package bees shipped on sugar syrup with queen. Pure Italian stock. 2-lb. pkg., 1 to 10, $4.25; 3-lb. pkg., 1 to 10, $5.25. Write for prices on larger lots or nuclei. No disease and safe arrival guaranteed. Reference furnished. 20 per cent books orders. John A. Williams, Box 178, Oakdale, La.

GOLDEN Italian queens and nuclei for 1925—the big, bright hustling kind (the kind that gets the honey). Satisfied customers everywhere. Untested, $1.00 each; 6, $5.00; 12, $10.00; $75.00 per 100; tested, $1.50 each. Two-frame nuclei, with queen, $4.50 each; 10 or more, $4.00 each. Safe arrival guaranteed. E. F. Day, Honoraville, Ala.

CAROLINA QUEENS—It has taken me years to produce a strain of bees on which I can give an absolute guarantee of perfect satisfaction. They are gentle, prolific, and excellent producers. Untested, $1.00 each; 12 for $10.00; $65.00 per 100; tested, $2.00 each; select tested, $2.25. A trial order will convince you. Carolina Bee Co., W. O. Curtis, Mgr., Graham, N. C.

CRANDALL'S Italian bees and queens are "PRODUCTION-BRED." Try some of them in those big hives and prove it yourself. Our customers, both here and abroad, are sending us some fine reports about them. Ready June 1. Untested, one, $1.00; 12, $10.00; 100, $75.00. Packages and nuclei. Safe arrival and satisfaction guaranteed. Circular on request. Connecticut Valley Apiaries, Berlin, Conn.

THREE-BANDED Italian queens. Every queen guaranteed a good queen. Warranted purely mated. Tested in May and June, $2.00 each. After June, $1.50. Untested in June, 1, $1.25; 6 for $7.00; 12 for $13.00. After June, 1, $1.00; 5, $5.00; 12, $10.00; 100, $75.00. If a colony goes through winter queenless it will not pay to give them a queen. Better unite it with another. J. F. Diemer, Liberty, Mo.

ITALIAN QUEENS—After 14 years of careful selection and breeding we have produced a strain of three-banded Italians that are superior to many. The gentle kind. Am breeding from the colony that produced eight complete ten-frame supers of fancy comb honey in 1924 without swarming. Am offering this strain at the following prices: Untested, 1, $1.00; 12, $10.00; 100, $85.00; tested, $1.50 each. Breeders, $5.00 each. Never had disease. Geo. Morrison, Box 65, Mandale, Ohio.

FOR SALE—Golden Italians bred for all the good qualities bees should possess, as well as for color. Queens only. Untested, $1.05 each; 6 for $5.50; 12 or more, 80c each. Postpaid and safe arrival insured. State certificate of health included. Hazel V. Bonkemeyer, Randleman, R. F. D. No. 2, N. C.

FOR SALE—Choice bright Italian queens. I have been building up this strain for the last 21 years for vigorous hustlers, good winterers, gentleness and fine color. These queens will equal the best on the market. Health certificates go with queens. Prices: 1 untested queen, $1.25; 12 untested queens, $12.00; 1 breeder, $5.00. Emil W. Gutekunst, Colden, N. Y.

MAJOR'S IMPROVED ITALIAN QUEENS—We are using a breeder from a colony that made 520 pounds of honey last year. Her bees are bright and gentle. Select untested, in my push-in-the-comb cage, $1.50 each; select untested in the regular mailing cage, $1.25 each. We are booking orders for June 15 and later. We guarantee safe arrival. H. N. Major & Co., South Wales, N. Y.

QUEENS—ALABAMA QUEENS. "Peaches and Cream" was the name a friend gave one of our three-banded Italian queens some time ago. The name is very appropriate as both are SO good. We raise only selects and culls. Culls are murdered at once, and selects are sold to people who want hustlers. We do not guarantee to please every one, as some can not be pleased. But we do guarantee to refund any moneys sent us for a queen, when she does not please you, if you will return her in her mailing cage. "You must be pleased," is our motto. State inspector on his visit said we had no disease, and he should know. To July 1, $1.00 each; balance of season, 75c. Autauga Apiaries, Autaugaville, Alabama.

WANTS AND EXCHANGES

WANTED—Small hand extractor. State size, price, and condition. Dennis Fowler, Stanton, N. Dak.

WANTED—Will pay top price for 10-inch or larger A. I. Root foundation mill in good condition. R. J. Inman, Riverton, Wyoming.

WANTED—To exchange package bees or queens for Root two-frame reversible extractor. Must be in good condition. John C. Hogg, Ramer, Ala.

WANT July or August package bees, colonies or equipment for good interest in Minnesota land, forty or quarter. A. M. Wise, Appleton, Minn.

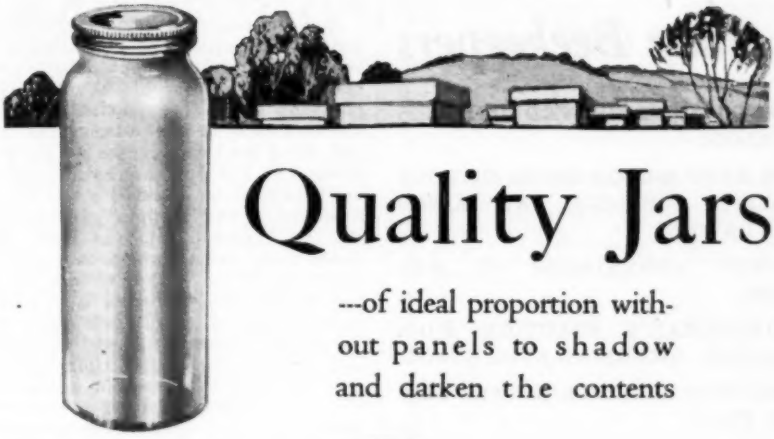
HELP WANTED

WANTED—Young man of some experience to work with bees. Room and board furnished. Wm. Bigel, Barrington, Ill.

WANTED—Man of experience to operate about 250 colonies, on salary and commission, and help about the farm. If married, wife can help in house. Pleasant surroundings and good home. Write or telephone Lloyd W. Smith, Madison, N. J., or 56 William St., New York City.

MISCELLANEOUS

THE BEE WORLD—The leading bee journal in Britain and the only international bee-review in existence. It is read, re-read and treasured. Will it not appeal to you? Specimen copy free from the publishers. Send us a postcard today. It is well worth your little trouble. The Apis Club, Benson, Oxon, England.



Quality Jars

---of ideal proportion without panels to shadow and darken the contents

The *Monogram*

on the bottom of every jar that we make is your guarantee of quality and sturdiness, just as the mark "sterling" is to the buyer of silver.

Insist upon *Glass Jars*

Order through our distributors or our main office at Wheeling, W. Va.

Distributors

THE A. I. ROOT COMPANY, Medina, Ohio.
HOFFMAN & HAUCK, 1331 Ocean Ave., Woodhaven, N. Y.
A. G. WOODMAN CO., Scribner Ave. and Blumrich St., Grand Rapids, Mich.

HAZEL-ATLAS

Honey Jars

IDEAL PROPORTIONS

To New York State Beekeepers

HAVE YOU RECEIVED OUR 1925 CATALOG?

WE HAVE A GOOD STOCK OF ROOT QUALITY SUPPLIES AND AIRCO FOUNDATION.

HONEY CONTAINERS OF ALL KINDS.

HUTZELMAN'S SOLUTION FOR TREATING AMERICAN FOUL BROOD.

AND JUST A LITTLE BETTER SERVICE FROM

A. I. Root Co. of Syracuse

1631 WEST GENESEE ST.,
SYRACUSE, N. Y.

Serves You Best

SOUR HONEY DEPT.

Mel Pritchard is home from Alabamy, but he aint editin the Sour Honey Dept. as anybody knows about. But he is jest achin to and boost his skunk farm corporashun stock free grattis, so he is. He better stay over in the basswood beeyard and mind his own bizness he knows best about and cut out skunks and editin. If he'll do that he and I'll make up for he likes fishin and trappin and queer bugs and no gardenin same as I do. But he needn't try to hogswoggle me out of this Dept. till I have showed up Doc Phillips's and Geo. Demuth's and Morley Pettit's and J. L. Byer's sort of beekeepin as stuckup stuff and too hifalutin and as takin tooo much time when fishin is at its best in June and again in coon

(Continued on page 402.)

NEW ENGLAND BEEKEEPERS

Freight paid to Brattleboro, Vt., on

Root Quality Bee Supplies

SEND YOUR ORDER NOW.

F. H. Coombs & Sons

BRATTLEBORO, VT.

If you wish package bees, nuclei or queens,

You Should Let Us Book Your Order Right Now

We give you choice of an **ITALIAN, GOLDEN** or **CARNIOLAN "QUALITY QUEEN," with each package or nucleus. Full weights,** good quality and prompt service. If you have not received our price list, write for it.

AULT BEE COMPANY

513 HOUSTON BUILDING. SAN ANTONIO, TEXAS.

Root Service from Chicago

WHEN you get *Root Quality Bee Supplies* from the greatest shipping center in America, you get *satisfaction.* You get a superior grade of goods in *quality* and *workmanship.* Twenty-seven railroads mean quickest service for you. Write for our new 1925 catalog. Let us quote you on your wants.

A. I. ROOT COMPANY OF CHICAGO

224-230 WEST HURON STREET, CHICAGO, ILLINOIS.

Queens 70c

BY RETURN MAIL

Mr. Beekeeper, why can we offer you good queens so cheap? Because basswood and clover are in full bloom, turning out nectar by the barrel. All of our colonies are boiling over with bees and all of our nuclei in full operation, turning out queens every day as fine as you ever saw. Now is your time to head your colonies with a good queen at a low price. These queens are as good as others that are selling for twice the money and will make you just as many pounds of honey. You take no risk in buying NORMAN BROS.' 3-banded Italian queens and bees. If you are not satisfied with them, just return them and we will replace or refund your money. All orders filled by return mail or soon thereafter. All orders for package bees we ship the day you name, by express only.

PRICES FOR JUNE AND JULY

Untested queens—1, 70c; 6, $4.00; 12, $7.75; 50, $30.00. Select untested—1, 80c; 6, $4.50; 12, $8.50; 50, $35.00. Tested queens—1, $1.35; 6, $7.50; 12, $13.50. Select tested—$1.50 each. One 2-lb. package with select untested queen, $3.50 each; 12 or more, $3.25 each. One 3-lb. package with select untested queen, $5.00 each; 12 or more, $4.75 each.

We guarantee pure mating, safe arrival, free from disease, and satisfaction, in U. S. A. and Canada.

NORMAN BROS.' APIARIES, NAFTEL, ALA.

Our $200 Queen Is Dead

But we are breeding from the best of her daughters and granddaughters. Repeated high-production records prove the value of our red-clover strain. The tongues of bees from our breeders measure 4-100ths of an inch longer than those of average bees.

Prices on three-band leather-colored queens for immediate shipment (or for shipment at any time you request): 1 untested, $1.00; 12 for $10.00; 1 tested, $1.75; 12 for $16.00. Write for complete circular and prices on quantities.

We guarantee safe delivery, freedom from disease, and perfect satisfaction or your money refunded. If you want your queens without delay send your order to us. We are producing more than fifty queens each day.

J. M. Cutts & Son

RT. 1. MONTGOMERY, ALA.

June Prices

Good, three-band queens that gather a profit.

GOOD UNTESTED, ONE GRADE

75c each; 25 for 70c each; 50 for 65c each; 100 for 60c each.

TESTED QUEENS, GOOD QUALITY

$1.50 each.

EXTRA SELECT TESTED, $3.00 each.

Only good queens are mailed; all poor queens are culled out and killed.

D. W. HOWELL
SHELLMAN, GEORGIA.

Mack's Queens

Perhaps you have been reading our ads for a number of years back and wonder what kind of queens we sell. We pin so much faith on them that we are almost assured that once you try them we have no need to worry about your future orders. For when you get something GOOD you will remember where you got it. We suggest that you try them along side of any other queens now listed on the market, regardless of price, race, breed or color, and see for yourself. Were it not for the many favorable reports and the repeat orders we get from beekeepers all over U. S and Canada, we would hardly feel like urging you to make such comparisons.

Select Untested, only $1.00 each; $10.00 a dozen; $75.00 per hundred.

Everything guaranteed but safe introduction, and we include good and efficient directions for that.

Herman McConnell
(The Bee and Honey Man)
Robinson, Illinois

Achord Queens

Splendid honey-producing Italians. Reared in one of the largest, best-equipped queen-rearing and package-shipping establishments in the South.

Select young laying queens, untested, 75c each, any number. Tested queens, $1.50 each, any number.

Promptly mailed to you in large mailing cages with 1925 inspection certificate. Safe arrival guaranteed.

W. D. Achord

Fitzpatrick - - - Alabama

(Continued from page 400.)

time in October and November. That's what I am aimin at—back-to-the-soil beekeepin. Jim Hambleton at Washinton is with me so R. B. WilLson of Ithaca is tellin round. Jay Smith orter be tooo.

I jest happened to think I aint got but two colonies left spring count out of six and so I aint goin to argufy jest now about it.

Next I am goin to let some friends of mine into this Dept. as follows to wit:

Mr. H. S. Sims of Midland, Mich., writes sayin: "Find one dollar for the next year's subscription. You might pay the dollar on your last coon dog."

Yes I might if Geo. Demuth ever had let that dollar get by hisself. He didn't. Also he dont.

This Boy Got the $1 Reward.

Cincinnati, O., May 5, 1925.

Sour Honey Dept.

Dear Sir: I hope my information will be the first to reach you and I expect to earn the $1 reward. That feller is my dad and I am Robert Charles Weber, 9 yrs. old. He's a good scout and you had better not say anything bad about him. My address is Rattesman Ave., Westwood, Cincinnati, O. And dont forget that dollar. That man's name is Charles H. Weber, 2146 Central Ave., Cincinnati, Ohio.

He got his dollar Robert did for I could see he probably wanted it by the way he writ. I writ him signin myself his true

(Continued on page 404.)

ITALIAN QUEENS

For 1925 **OUR OLD RELIABLE THREE-BANDED ITALIANS** will be shipped from one of the largest and best equipped queen-rearing yards in the **SOUTH.** Since enlarging our queen-rearing yards we are prepared to put out double the amount of **HIGH GRADE** queens as heretofore and feel that we are in a better position than ever to fill all orders on time. We ship thousands of queens all over the U. S. and Canada every year. Our bees have a reputation as honey-gatherers. They have made a hit with northern beekeepers for their hardiness and ability to build up strong colonies in early spring. Orders booked for one-fourth cash, balance before delivery. Safe arrival guaranteed in the U. S. and Canada. No disease. Circular and price list free.

Prices for April, May and June: Untested, $1.25; 6, $6.50; 12, $12. Tested, $2.50; 6, $14.00; 12, $27. Select Untested, $1.50; 6, $8.00; 12, $15.00. Select Tested, $3.00 each.

JOHN G. MILLER

723 C St., Corpus Christi, Texas

Root QUALITY BEE SUPPLIES

WE HAVE TRIED TO ANTICIPATE YOUR BEE-SUPPLY NEEDS AND HAVE ON HAND A CARLOAD OF ROOT'S GOODS. ORDER FROM US AND SAVE FREIGHT.

24-HOUR SERVICE.

THE SCHENECTADY BEE SUPPLY CO.

242 Union St., Schenectady, N. Y.
Telephone 313R.

PROMPT SERVICE ASSURED

BEELINE QUEENS

PERFECT SATISFACTION GUARANTEED

They are not pedigreed or registered, but just PURE ITALIANS; reared, mated, and caged with the greatest of care, from breeders that are unsurpassed as honey-gatherers. A trial will convince you of their superior quality.

Untested, 1 or 100.....$1.00 each
Select Untested, 1 or 100..... 1.50 each
Tested, 1 or 100..... 2.00 each

Write for free descriptive booklet.

MAJORS NORDAN, Box 113, KIMBERLY, ALABAMA

—QUEENS OF—

Moore's Strain

OF ITALIANS PRODUCE WORKERS
That fill the supers quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Untested queens, $1.00; 6, $5.00; 12, $9.00. Select Untested, $1.25; 6, $6.00; 12, $11.00. Safe arrival and satisfaction guaranteed. Circular free.

J. P. MOORE, QUEEN BREEDER,
Route 1, Morgan, Kentucky.

Patents Practice in Patent Office and Court. Pat. Counsel of The A. I. Root Co.

CHAS. J. WILLIAMSON,
McLachlan Bldg., Washington, D.C.

Hollopeter's
Queens and Service
Italians, Untested,
Ready June 1st

1, $1.25; 6, $7.00; 12, $13.00; 25, $24.00; 50, $45.00; 100, $80.00.

J. B. Hollopeter, Rockton, Pa.

QUEENS

Pure Three-banded Italians
Bred for Business

Our output has been greatly increased. No order too large for consideration, none too small for prompt attention. We strive to excel in queen-rearing and service. No disease.

PURE MATING, SAFE ARRIVAL AND SATISFACTION GUARANTEED

UNTESTED
(CHOICE QUEENS ONLY)

75c each

$65 per 100

Jensen's Apiaries
Crawford, Miss.

Carniolans

carefully bred show the following desirable traits to a high degree: They are very gentle, very prolific at all times, build very white combs, are most excellent workers, resist brood diseases as well as any bees and do not swarm excessively if intelligently managed. My paper, "MERITS OF THE CARNIOLAN BEE," describes Carniolans more fully and outlines successful plans of managing these bees. Free for the asking.

I supply Carniolans of my own strain, 13 years selection and breeding, and the Jan Strgar and M. Ambrozic imported strains. Breeders imported 1924.

ITALIANS

I am rearing Italian queens 12 miles from Carniolans, C. B. Hamilton strain. The mother of this breeder produced 577 sections of comb honey.

1 untested queen, either strain.....$ 1.50
12 untested queens, either strain..... 16.00
Tested queens, each 2.50

Safe arrival and satisfaction guaranteed.

ALBERT G. HANN
GLEN GARDNER, NEW JERSEY

Better Service for the Buyer of Bee Supplies

is one of the principal aims of our business. We believe, therefore, that our greatest usefulness lies in supplying WHAT you need, WHEN you need it.

We are manufacturers and distributors of just a little better bee supplies, just a little higher grade —SECTIONS, Bee Hives and Frames—in fact, everything the beekeeper needs.

Write for our free illustrated catalog and price list today.

AUGUST LOTZ COMPANY
BOYD, WISCONSIN.

(Continued from page 402.)

friend and tellin him to talk to his Dad about bein better.

White Pigeon, Mich., May 6, 1925.
Mr. Editor Sour Honey Dep't,
Medina, Ohio.

Dear Mr. Editor:—I noticed in Gleanings of this month, an advertisement offering $1.00 for a ambusher. Now i aint certain but i think he is rite here in St. Jo County, Mich. There is a feller here that answers that discription, only he is larger than that picter shows. But he is very smoothe and a good talker and makes folks believe almost anything. And he seems to have a patent on his honey boxes. It is in the shape of a web in the corner of the box and folks thinks that is to catch the flies, and they buy it rite along cause he sells it for 10 or 12 sents a box, and if they dont take it at that, he just ups and gives it to them. Now if you will come out here and help, you and me will catch that feller and you can have the reward, only dont say that I had anything to do with it, for i dont want him to know. For he is lots of him (triplets i think—maybe "quadruletts"—I know he is not a "quadruped," for a hog would not do that) and i am just a little afrade of him. But don't you think he aught to be caught and ham-strung or suthan like that? Will you help?

Yours on the quiet,
FRANK VAN GILDER.

Yes, but before I start to come to help catch him write me a purty accurit descripshun of jest how big he is. I guess he's a soft head and not a hog, but my enthoosiasm for catchin and deesciplinin soft heads even is somewhat modified by

(Continued on page 406.)

Carniolans and Caucasians

merit your trial this season. Get our prices before placing your order. We offer Carniolans from direct-imported Kofler and Ambrozic strains, as well as our own selected stock. CAUCASIANS bred from newly imported stock and the famous QUINN strain.

We are prepared to supply you with package bees for the season. Let us quote you prices. ITALIANS. We can supply you the best in three-banded stock. Get our 1925 circular, which gives full particulars of everything. It is free upon application.

W. A. HOLMBERG, Rt. 2, Turlock, Cal.

QUEENS, $1.00

Pure yellow Italian queens, dependable, reliable, bred from very best honey-gathering strain. Beautiful leather color, prolific, producing large uniform bees.

Untested Queens: $1.00; 6, $5.00; 12, $9.00; 50 queens or more, 70c each.

Selected and inspected by the State Inspector.

G. H. MERRILL APIARIES
PIEDMONT, S. C.

Townsend's Bulletin No. 22

Two years ago I sold Untested SHAW "line-bred" queens at the very reasonable price of $1.25 each, or $12.00 per dozen. I had many, many orders that it was impossible to fill with my two breeding yards. This summer, during the months of June, July, and August, I have decided to not advance the price of queens, but limit the number that I would sell each customer to one dozen, and by so doing, am in hopes that all can be supplied with a few of these fine queens. Note: just during the months of June, July, and August, each can buy up to 12 untested queens at $1.25 each, or $12.00 per dozen.

Bear in mind that I have bought and still own every colony of the two genuine SHAW bee yards located near Loreauville, and to get the genuine SHAW stock "line-bred" for a third of a century you will have to order of the undersigned. There are many who breed the SHAW strain of bees, and sell them under different names, but to be sure of your stock, address E. D. Townsend, Loreauville, La., successor to J. W. K. SHAW & Co., "Where the good queens come from."

Later: I will do the office work at my summer home at Northstar, Michigan, where you should address me, and I will immediately forward your orders to my queen-breeder at Loreauville, and he will mail your queens direct to you. Orders filled in rotation.—E. D. T.

Superior Italian Queens

To June 15: *Untested, 1, $1.00; 10, 85c each; 100, 75c each. Tested, 50c more.*

After June 15: *Untested, 1, 80c; 10, 75c each; 100, 60c each. Tested, 50c more.*

Prompt Shipment---Absolute Satisfaction Guaranteed

Three Thousand Nuclei

THE STOVER APIARIES

Tibbee, Miss. **Telegraph Office, Mayhew, Miss.**

TODAY

OUR **THRIFTY** QUEENS ARE PLEASING HUNDREDS OF AMERICA'S BEST BEEKEEPERS.

OUR 33 YEARS OF CAREFUL BREEDING MAKES IT POSSIBLE FOR US TO GUARANTEE THEM TO PLEASE YOU.

WE WILL GIVE YOUR JUNE ORDERS OUR PROMPT AND CAREFUL ATTENTION. SAFE ARRIVAL WILL BE GUARANTEED ON ALL SHIPMENTS TO CANADA AND THE UNITED STATES.

LET US MAIL YOU A COPY OF OUR FOLDER GIVING FULL DETAILS.

UNTESTED QUEENS: 1 TO 11, $1.00 EACH; 12 to 24, 85c EACH; 25 to 99, 80c EACH; 100 UP, 70c EACH. SELECT UNTESTED: 1 TO 11, $1.25 EACH; 12 to 24, $1.00 EACH, 25 TO 99, 90c EACH.

WE CAN MAKE PROMPT SHIPMENT ON PACKAGE BEES AND WILL QUOTE UPON REQUEST.

W. J. Forehand & Sons, Fort Deposit, Ala.

Thagard's Imported Three-bands Make Good with Mr. Stallings

"I average over 400 lbs. from the colonies headed with your imported stock."—Willie Stallings, Honoraville, Ala.

Our queens are bred from breeders direct from Italy, and mated to imported drones. They have not only made good with Mr. Stallings but with thousands of the best beekeepers in the country.

Untested queens: 1, $1.00; 12 up, 85c each; 100 up, 75c each.

One-pound package with queen, $2.60. 12 up, $2.40 each. Two-pound package with queen, $3.80; 12 up, $3.60 each.

The V. R. Thagard Co.
GREENVILLE, ALA.

Dr. Guy A. Shaw Hy H. Ramsey

Queen Breeders

A part of the old firm of J. W. K. Shaw & Co., producers of the wonderful, productive SHAW line-bred Italian bees. Dr. Shaw mixed brains and royal jelly well, according to Townsend, when he produced this wonderful strain of Italian bees. Dr. Shaw is still using brains and royal jelly in improving this same strain of Shaw bees.

We take this opportunity to thank our many friends for the generous response to our efforts. We are overwhelmed with orders—sorry we are unable to fill them all, especially single orders for five hundreds queens. We are striving earnestly to do all orders justice and shall soon be better equipped to fill any size order. Tested queens, $1.50; untested, $1.00.

SHAW & RAMSEY,
LOREAUVILLE, LOUISIANA.

(Continued from page 404.)

their size at times. Also what is his general disposishun. Praps you better do it yourself alone and get the honor alone and I'll write you up in this Dept. dead or alive as a hero. The more I think of it you do it alone, and I'll keep straight on up to East Jordan and go fishin with Ira Bartlett. Write me to help again sometime when the honey-price cutters you want to hamstring aint extra size XXX Michigan grade.

Rush, Pa., Feb. 4, 1925.

Dear Sirs:—I'm perplexed. I'm almost desperate. I've kept bees and studied them for years and years and now some academic fool comes out with the statement that bees are skywriters, that, when they go afield, they leave a scented trail behind and follow this trail when returning. Now, look here: Sometime in August I extracted honey. I removed it from the hives one afternoon, and extracted and strained it at night. As the house is not bee-tight some bees wedged their way in about three or four o'clock and stayed all night. In the night a shower came up, and the rain descended and the floods came, and the winds blew and beat upon that house. It didn't quite fall, but how about the scented trail? Wouldn't it be battered out of shape? Singularly enough those bees went the proverbial bee-line home

(Continued on page 408.)

RUSSELL'S SUPERIOR QUALITY QUEENS

As we have discovered the secret of mating queens to choice drones, we believe we are justified in saying "SUPERIOR QUALITY" QUEENS. 25 years' experimenting has brought us to the position where we can give you the very best obtainable in three-band bees. No order too large, none too small. Guarantee safe delivery. Free from disease. We never had a diseased colony in our yards.

2-frame nuclei from Roxbury, $5.00 each, as long as they last. Certificate with each package of nuclei, or queen.

QUEENS, $1.00 each in April; May, $1 each, 3 for $2.25; breeders, $10. We can supply either Carniolan, Golden or Italian.

The Russells' hives are crowded,
The Russells' hives are jammed.
The bees that fill the supers
Are from the F. M. Russell strain.

F. M. Russell Co., Roxbury, Ohio

GOLDEN ITALIAN QUEENS

BRED FOR BUSINESS

Only one grade select. Safe arrival and satisfaction guaranteed.

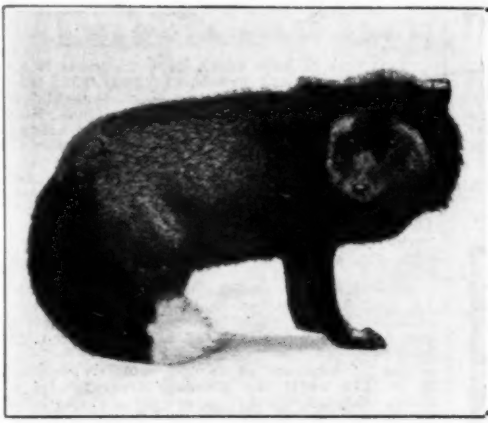
Untested, 1, $1.00; 12, $10.00. Tested, $2.50 each.

1-lb. pkg. of bees and untested queen, $3.00; 2 lbs., $5.00. All mail charges paid.

E. A. SIMMONS - - GREENVILLE, ALABAMA.

LOCKHART'S SILVER-GRAY CARNIOLANS.

42 years of experience breeding this wonderful race of bees; 38 years a breeder and importer of queens. They are very hardy, gentle, prolific, great honey-gatherers, and builders of very white combs. Use mostly wax in place of propolis. Not inclined to rob like Italians. Winter extra well and build up quickly in spring. Prices of queens for May and June: Untested queens, $1.50 each; 6, $1.45 each; 12, $1.40 each; 25, $1.25 each; 50 or more, $1.00 each. Select untested queens, $2.00 each; 6, $1.80 each; 12, $1.75 each; 25, $1.60 each; 50 or more, $1.50 each. Tested queens, $3.00 each; select tested, $5.00 each; breeding queens, $10.00 to $25.00 each. Prices of queens from July to November: Untested queens, $1.00 each; 6, 95c each; 12, 90c each; 25, 80c each; 50 or more, 75c each. Select untested queens, $1.50 each; 6, $1.45 each; 12, $1.40 each; 25, $1.25 each; 50 or more, $1.00 each. Safe arrival and satisfaction guaranteed in U. S. and Canada. No foul brood here. **F. A. Lockhart & Co., R. F. D. 1, Lake George, N. Y.**



Silver Black Foxes

A fascinating and highly profitable industry that combines well with bee-keeping or almost any other calling, as a few foxes occupy but a small plot of ground. Only ordinary intelligence and a small amount of time required to look after them. We are prepared to sell, for fall delivery, fully registered foxes of quality, either from Ontario or Maritime Provinces, as we have interests in both places. A fair deal guaranteed, and if required, can give personal references that should satisfy anyone.

As to my responsibility in a commercial way, would refer you to Bank of Nova Scotia, Markham, Ont.

J. L. Byer, Markham, Ont.

Substantial Reduction in Prices

With the same standard of Quality and Service.

One Untested Italian Queen, 75c; 50 or more, 65c each; 1 2-lb. pkg. with queen, $4.00; 10 or more, $3.70 each.

Safe arrival and satisfaction guaranteed.

JOHN C. HOGG, RAMER, ALABAMA

THOSE WHO WISH TO PURCHASE SOME OF THE BEST BREEDING QUEENS, that have been carefully tested and are very prolific, large, good layers, whose bees are well marked, good color, large, gentle, and good honey-producers, are safe in purchasing same of us at only $6.00 each. Safe arrival and satisfaction guaranteed. Selected tested, about as good as breeding queens, only her drones may not quite all have three bands, at only $3.00. Extra pure yellow goldens or three-banded Italians.

Besides breeding-queens, we offer two-frame nuclei or two-pound packages of bees that are choice bees with our quality selected tested ninety-day-old queens at only $5.00 each. Safe delivery, satisfaction, and health certificate guaranteed.

LOUISIANA MODERN APIARIES, BUNKIE, ALA.

Mott's Northern-bred Italian Queens

Select untested, till June 1: $1.25; $1.00 each thereafter. Select, guaranteed pure-mated, $1.25 each. Select tested, $2.00. Virgins, 50c. No disease. Satisfaction and safe arrival guaranteed. Canada borders Michigan on the east and north. Save long trips. All selected stock.

E. E. Mott, Glenwood, Mich.

Long-Lived Bees Are Profitable

I know that my principal breeder queen is not less than four years old and still going strong. Get prices of her daughters.

R. V. Stearns, Brady, Tex.

NEW CATALOG READY

BEEKEEPERS' SUPPLIES

Root's Goods of High Quality. Three-ply foundation, standard stock of supplies kept on hand for prompt shipments. Send us your inquiries and orders early for quick action.

J. NEBEL & SON SUPPLY CO.

Montgomery County. High Hill, Missouri

GOLDEN QUEENS AND THREE-BANDED BEES FOR 1925

Untested queens, $1.00 each. Tested, $1.50 each. 2-lb. package of bees, $3.00; 3-lb. package of bees, $4.50; nucleus, $1.50 per frame. Additional pound of bees with nucleus, $1.00. No disease; safe arrival guaranteed; bees inspected; never had disease.

J. W. SHERMAN, VALDOSTA, GEORGIA.

World's Best Roofing
at Factory Prices
"Reo" Cluster Metal Shingles, V-Crimp, Corrugated, Standing Seam, Painted or Galvanized Roofings, Sidings, Wallboard, Paints, etc., direct to you at Rock-Bottom Factory Prices. Save money—get better quality and lasting satisfaction.
Edwards "Reo" Metal Shingles
have great durability—many customers report 15 and 20 years' service. Guaranteed fire and lightning proof.
Free Roofing Book
Get our wonderfully low prices and free samples. We sell direct to you and save you all in-between dealer's profits. Ask for Book No 183
LOW PRICED GARAGES
Lowest prices on Ready-Made Fire-Proof Steel Garages. Set up any place. Send postal for Garage Book, showing styles.
THE EDWARDS MFG. CO.
633-683 Pike St. Cincinnati, O.
FREE
Samples & Roofing Book

HONEY PAILS
MANUFACTURERS OF
"BLOSSOM-SWEET"
AND
BADGER BRAND
5 and 10 lb. Honey Pails.
We specialize in 5 and 10 lb. round pails and 60 lb. square cans. Plain and Lithographed cans of all descriptions.
WILKES-BARRE CAN CO.
ESTABLISHED 1856
WILKES-BARRE, PENNA.

(Continued from page 406.)

as soon as they concluded there was no more honey.

This talk of bees being mere machines is all folderol—Root and branch. In your 1913 edition of ABC and XYZ you say that Huber proved that bees smell with the antennae. Now I read that bees have olfactory pores around wings, etc., and the proof was that bees with wings pulled out didn't react to odors so well! Imagine a great monster 1000 times bigger than ourselves pulling our legs out and testing us with odors! Wouldn't our "reactions" be different? You will say that we have no right to interpret bees as we do people, but why not, as long as the theory proves out all right?

How can we introduce by the fasting method, and how can we change places with two colonies to strengthen one, and what good is the flight of orientation if bees are ruled by odor?

Say, if bees are so darned odoriferous what is it that wafts the pleasant fragrance of a queen through three stories when a queen is placed at the entrance of a strong queenless colony? I used to think 'twas sound but these shallow-minded infidel investigators have got me tangled up. Hadn't those old masters who kept bees for fifty years (many of them civilized Christian men) ought to be more reliable than our high-speed 15-minute researcher?

I await a reply with anxiety.

JEHILE B. KIRKHUFF.

Afore I reply detailed do you mind tellin what you meant by capitalizin that word Root after folderol in the above? And again I aint allowed to use that word darned the way you are. Otherwise I am with you to the last word you say in the above. You and I, Mr. Kirkhuff, from now on join hearts and hands agin these hibrows of beekeepin. Jim Hambleton is with us tooo. Do you line bees? What fish bait are you usin in the Susquehanny this spring? Do you own a good coon dog? I await a reply with anxiety tooo.

OLD DRONE.

GOLDENS ONLY

Untested: One, $1.00; 6, $5.00. Select Untested: 1, $1.25; 5, $5.00. Select Tested, $3.00. Breeders, $5.00. Quality and safe delivery or money back.

S. H. HAILEY

PINSON, TENNESSEE.

Package Bees

QUALITY — SERVICE
None better at any price.
Illustrated circular free.

Van's Honey Farms, Hebron, Indiana

Big, Bright Northern-bred Italian Queens

Bred for beauty, gentleness, and honey-gathering qualities. Delivery begins June 1. Untested, $1.00 each.

M. P. LeMUNYON, R. D. 3, Cassopolis, Mich.

The New England Apiaries

Our queens are the very best 3-banded Italians and guaranteed to please you, or your money refunded.

June 1st Untested.		Package Bees and Nuclei with Queens.	
1	$ 1.00	2 lbs.,	$4.50 each, 10 or more, $4.00 each
12	10.00	3 lbs.,	5.50 each, 10 or more, 5.00 each
50	40.00	2-fr. nuclei,	5.00, 10 or more, 4.50 each
100	75.00	3-fr. nuclei,	5.50, 10 or more, 5.00 each

We believe we send out the finest package bees and nuclei in the country. Generous overweight packages and fine combs of sealed brood. Our bees are gentle.

New Britain, Connecticut

Beekeepers' Supplies

—o—

Finest Quality
Right Prices
Prompt Service
Courteous Treatment

—o—

We solicit your patronage

—o—

Wm. Baldwin

24 N. Erie St., Toledo, Ohio

Authorized Distributor for THE A. I. ROOT COMPANY.

Queens 60c *By Return Mail*

Hundreds of No. 1, first-class queens for June and July delivery. These queens will be reared from a natural honey flow from clover. It doesn't cost anything but our labor. That is why we can offer them so cheap. No black bees within five miles of mating yard. Untested queens, 60c each; select untested queens, 70c each; 2-lb. package, $3.50 each; 3-lb. package, $4.50 each, queens included, shipped by express only.

We guarantee pure mating, safe arrival, free from diseases, and satisfaction in U. S. A. and Canada.

MONTGOMERY CO. APIARIES

NAFTEL, ALABAMA.

NEWMAN'S QUEENS

are absolutely first quality and fully guaranteed. Satisfaction and safe arrival. Untested, $1.00; 6, $5.00; 12, $9.00. Select Untested, $1.25; 6, $6.00; 12, $11.00. Circular free.

A. H. Newman, Queen-breeder, Morgan, Ky.

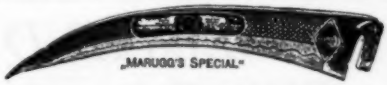
New England

Beekeepers will find a full line of supplies here. We can save you time and money, and solicit your orders.

Send for new catalog.

H. H. JEPSON

237 Park St. Medford 55, Mass.



The Apiarist's Friend.

GERMAN SCYTHES AND SICKLES, with "Dangel" cutting edge, permit cutting of grass in the apiary with minimum disturbance of the colonies. Catalog on request.

The Marugg Co., Dept. B, Tracy City, Tenn.

TOO LATE FOR CLASSIFICATION.

EXPERIENCED beekeeper desires position. Patrick Houston, 321 Westminster Road, Brooklyn, N. Y.

THREE-BANDED Italian queens—1, $1.00; 6, $5.00; 12, $10.00; 100, $75.00. G. E. Whittle, Mussel, Alabama.

ON receipt of order—a one-frame nucleus with two pounds bees and a select untested queen, 1-25, $3.25 each; 25 or more, $3.00 each; each additional pound bees, add 70c; additional frame of brood, 60c. Select tested queens, add 75c; one select untested queen, $1.00 each; 25 or more, 90c each. We guarantee safe delivery and a health certificate with each shipment. Reference, Avoyelles Bank, Moreauville, La. C. A. Mayeux, Hamburg, La.

BARGAIN IN ROOT'S GOODS. Clean stock. Packages just a little shopworn. Jumbo Hoffman frames, $5.20 per 100; shallow frames with corner-cut top-bar, $4.40 per 100; eight-frame shallow extracting supers, with frames, $4.20 for five; eight-frame bottom-boards, $2.55 for five; eight-frame inner covers, $2.70 for five; 10-frame supers for 4¼x1½ sections, $1.05 each; 30 10-frame supers for 4¼x4¾ sections, 50c each. The Stover Apiaries, Tibbee, Miss.

Selected Queens

QUEENS BY RETURN MAIL

Our queens are giving wonderful results, their colonies producing large yields of honey. Try them and be pleased as others are. Mr. J. C. Smith, Washington, D. C., states: "I have never made a purchase that gave the satisfaction that your queens did; their quality was extremely high and I have never had better." We guarantee every queen we ship to give entire satisfaction. Pure mating, safe arrival and prompt delivery guaranteed. Wings clipped free of charge on request.

PRICES.

Select Untested	$0.75 each
50 or more	.65 each
Select Tested	1.50 each

Hayneville Apiary Co.
HAYNEVILLE, ALABAMA

Queens That Are Queens

ITALIANS

We have them and are now prepared to offer them to the beekeepers in quantity lots. We have been producing large crops of honey for 25 years and have reared thousands of queens and have stock that we believe is excelled by none. Try one or a dozen and you will want more. They get the honey. We want to show you.

1 select untested queen	$ 1.00
6 select untested queens	5.40
12 select untested queens	10.20
1 select tested queen	1.75
6 select tested quens	9.00

Queens shipped from Sumterville, Ala.

——Address——

DAVID RUNNING
Filion, Michigan, or Sumterville, Ala.

YOU BUY *BEES AND QUEENS* IN ONE OF TWO WAYS

? *On Trust or On Certainty* 4-hands

You either know you are going to get good queens and bees or you hope you are.

Hope may result in poor stock, delay, loss of colony and no honey. Knowledge means first-class stock, prompt delivery, courteous treatment, satisfaction and profit.

When you mail your order to FOREHAND you know you are buying QUEENS AND BEES on certainty. How about your next order?

Untested queens, 1 to 12, $1.00 each; 12 to 25, 85c each. One lb. bees with queen, $3.25; two lbs. bees with queen, $5.25; three lbs. bees with queen, $6.25; 10 or more packages of either, 25c less per package. POSTAGE PAID ON BEES AND QUEENS. Satisfaction and safe delivery guaranteed. REMEMBER THE PRICE IS PREPAID ON PACKAGE BEES. Write for prices on large lots.

N. FOREHAND -:- GONZALEZ, FLORIDA

Leininger's Strain of Italians

We have been queen-breeders for nearly 50 years. In all this time we have tested nearly every strain of Italian bees in the U. S. A. By this careful selection and breeding we have succeeded in producing a strain of bees surpassed by none but superior to many, bees that are gentle and great honey-gatherers.

Therefore if you buy queens from us you may be assured that back of them are nearly 50 years of careful breeding for the production of honey.

As we are located in a red-clover belt, it is but natural that our bees should have a long-tongue reach.

We will sell queens from this superior strain as follows: Untested, 1 to 5, $1.00 each; 6, $5.50; 12, $10.50; 100, $85.00. Tested, $1.50 each; select breeders, $5.00 to $10 each.

Safe arrival and satisfaction guaranteed.

Fred Leininger & Son, Delphos, Ohio

QUEEN ALICE

This year we are unusually fortunate, for we have three of the best breeding queens we ever possessed to head our apiary. Two are from our regular extra-yellow stock. The other is Queen Alice, our three-banded wonder. This queen was reared and sold by me in 1917. She made a wonderful record in comb-honey production and has never swarmed. Now in her ninth year, she filled her hive with brood. Her bees are beautiful and exceptionally gentle.

Write for our Twenty-fifth Anniversary Catalogue.

PRICE LIST.

Before July 1—1 to 4 inclusive, $2.00 each; 5 to 9 inclusive, $1.95 each; 10 or more, $1.90 each. After July 1—1 to 4 inclusive, $1.50 each; 5 to 9 inclusive, $1.45 each; 10 to 24, inclusive, $1.40 each. BREEDING QUEENS, guaranteed service for the season, $10.00 each. Our book, "Queen-Rearing Simplified," $1.25, postpaid. Jay Smith Push-in Introducing Cage, 35c postpaid.

Jay Smith

Route Three, Vincennes, Indiana

To the Beekeepers of Vermont

Root quality Bee Supplies in stock. Prompt service with a short railroad haul saves time. Your patronage solicited.

F. D. MANCHESTER, Middlebury, Vermont.

Queens---Rhode Island---Queens

Italian Northern-bred queens. Very gentle and hardy. Great workers. Untested, $1.00 each.

Queens delivered after June 1.

O. E. TULIP, ARLINGTON, RHODE ISLAND.
56 Lawrence Street.

TENNESSEE
QUEENS OF QUALITY

3-band Italians only. Unt. Queens, $1.00 each; six for $5.00; $9.00 per doz. Pure mating and entire satisfaction guaranteed.

J. I. BANKS, DOWELLTOWN, TENN.

TALKING QUEENS

(They Speak for Themselves)

QUEENS—Untested, each, $1.00; 12 for $10; 100 for $80. Tested, each, $1.50; 12 for $15; 100 for $100. Breeding queens, the best to be had at any price, each, $5.00. Will ship with a nucleus with her own bees for $8.00.

BEES—Two-pound package of bees and queen, each, $3.00; three-pound package of bees and queen, each, $4.00. 5 per cent discount on orders for 100 packages or more. No bees shipped C. O. D. or by parcel post. 10 per cent books your order, balance ten days before shipment. Bees are fed in transit on the best sugar syrup.

There is no disease; health certificate with every shipment. I breed only the light three-banded Italians.

W. H. LAWS

Producer of Bees, Queens, and Honey.

Box 505, Wharton, Wharton Co., Tex.

I have been shipping bees and queens since 1889.

WANTED
More Western
BEESWAX

To supply the greatly increased demand for our new "SUPERIOR" HEAVY DUTY FOUNDATION. Drop us a card and we will quote you price either f. o. b. your station or f. o. b. Ogden, Utah. Many of our friends ship their beeswax to us each year without writing, knowing that they will get a square deal. All beeswax should be shipped to us at our factory at Ogden, Utah.

Superior Honey Co.
Ogden, Utah

Citronelle Queens in the North

Our strain of Italians winters well in the North.
Read the following letter:

Juntura, Ore., March 20, 1925.

Citronelle Apiaries, Citronelle, Ala.

Dear Sirs:—Enclosed find my check for $10.00 for which send me 12 of your queens. The queens I bought of you last fall are fine and they all wintered in good shape, although we had the coldest winter ever recorded here. There were times when we had 48 degrees below zero, but colonies headed with your queens came through in the best shape of any in my apiary of 114 colonies.

Yours very truly,
CURTIS WHARTON.

QUEENS—Untested, 75c each; 12 for $8.50, or 100 for $65.00. Select Untested, $1.00 each; 12 for $10.00, or 100 for $75.00. Tested queens, $1.50; breeders, $5.00 to $25.00 each.

PACKAGE BEES—Young queen furnished in each package. 2-lb. packages, $3.00 each, any number; 3-lb. packages, $4.00 each, any number.

Health certificate with each shipment. Satisfaction and prompt service guaranteed.

Citronelle Apiaries, Citronelle, Ala.

QUEENS :: PACKAGE BEES

Knight's *Line-Bred, Pure, Three-Banded, Leather-Colored* *Italians*

For hardiness, prolificness, gentleness, and honey-gathering qualities they cannot be excelled. Several northern beekeepers inform me my queens cleaned them of European foul brood last season, enabling them to secure a honey crop.

Prices, Select (one grade) Untested

1 to 4.....	$1.00 each	10 to 14.....	$0.80 each
5 to 9.....	.90 each	15 and more....	.75 each

All queens guaranteed mated pure, and to give perfect satisfaction. Can still make immediate shipment of 2-lb. packages with queens, price $5.00 f. o. b. buyer's address.

JASPER KNIGHT, HAYNEVILLE, ALA.

The Alcohol-Formalin Solution

Has stood the severest tests throughout the past four years.

It has passed tests where water-formalin solutions and other water solutions have frequently failed.

Comparative tests in my own apiaries have shown that water disinfectants frequently give rise to recurrences of American foul brood.

Save your infected combs by disinfecting with

Hutzelman Solution

Patented Oct. 14, 1924.

For full information ask your dealer or write to

J. C. HUTZELMAN, M. D., GLENDALE, OHIO

4% BANKING BY MAIL

WHEREVER

you happen to live you have opportunity to save. This bank welcomes deposits BY MAIL on which it pays 4 per cent interest.

THE HOME OF THE HONEY BEE

THE SAVINGS DEPOSIT BANK CO. MEDINA OHIO.

E. B. SPITZER, PRES. E. R. ROOT, VICE PRES. H. E. AYLARD, CASHIER

You can have cash for your wax and old combs or cappings at the market price, or we allow a little more in exchange for supplies. Write for our terms and prices.

"Falcon"

Supplies--Queens--Foundation

W. T. Falconer Mfg. Company

Falconer, New York (near Jamestown)

"Where the best beehives come from."

Ask for catalog. *Booklet, "Simplified Beekeeping for Beginners," free.*

Root Quality Queens

Known the World Over as the Best

One of our 20 Apiaries at Medina, Ohio. Photographed August 1, 1924.

Three-Banded Italians

Prolific - Uniformly Marked - Vigorous - Disease-Resistant - Hardy

QUEEN PRICES

Quantity:	1 to 9.	10 to 24.	25 to 49.	50 to 99.	100 or over.
Untested	$1.50 each.	$1.35 each.	$1.25 each.	1.10 each.	$1.00 each.
Select Untested..	2.00 each.	1.80 each.	1.70 each.	1.55 each.	1.45 each.

Tested, $2.50 each; Select Tested, $3.00 each.

OUR GUARANTEE ON QUEENS

We guarantee safe arrival of queens sent in mailing cages, except as noted at end of this paragraph. We agree to refund the money or replace the queen if the one first sent arrives dead, provided the beekeeper receiving the dead or unfit queen notifies us and returns her at once and in her own shipping cage, properly marked with name and address of the sender. No delay in returning the queen can be permitted. This guarantee applies only on queens sent to customers in Canada and the United States, but not to her possessions.

PRICES OF BEES

In Two-pound Combless Packages by Express, April 15 to August 15.

	1 to 9 pkg.	10 to 24 pkgs.	25 or more pkgs.
2-pound package of bees.....	$5.00 each.	$4.50 each.	$4.00 each.

Add price of queens wanted to package price given above. Large quantity lots quoted on application. These prices are F. O. B. Medina, Ohio.

WE ARE BOOKING ORDERS NOW FOR JULY QUEENS

The A. I. Root Company, Medina, Ohio, U. S. A.

100 QUEENS $80.00

Untested queen, $1.25; 10, $10.00; one hundred, $80.00. Selected Untested, add 10c per queen to prices above. Tested queen, $2.00. Selected Tested, $5.00. 4-lb. packages with queens, now $4.50 each; 3-lb. packages with queens, now $3.75 each. Guarantee safe arrival.

Honey Girl Apiaries

HAMBURG, LOUISIANA.

Better Way to Garden

Wonderful New Garden Machine!

You can now have the finest garden possible, without the slow, back-breaking work. Weeds **must** be kept out and the surface broken up to retain the moisture. This marvelous machine makes it easy and quick.

BARKER Weeder, Mulcher, and Cultivator

Simply push a BARKER along the rows (like a lawn mower). 8 blades revolving against underground knife destroy the weeds and **in same operation** chop up the clods and turn the surface crust into a level, porous mulch; also aerate soil. "Best Weed Killer Ever Used." Guards protect leaves. Has shovels for deeper cultivation. A boy can run it and do more and better work than 10 men with hoes. Used by thousands market gardeners, experiment stations, farm and town gardeners. Inexpensive.

FREE BOOK tells how to get best garden results; eliminate hard work. Illustrates and describes Barker; gives prices delivered, etc. A card brings it.

BARKER MFG. CO. David City Nebraska Box 15

Write for this Free Book

Examine this new book on the honeybee for 10 days free

Here is a complete book on the honeybee that every beekeeper will welcome. It covers the anatomy, physiology, and behavior of the honeybee in detail.

ANATOMY AND PHYSIOLOGY OF THE HONEYBEE

BY R. E. SNODGRASS
U. S. Bureau of Entomology.
327 pages, 6 x 9, 108 illustrations, $3.50.

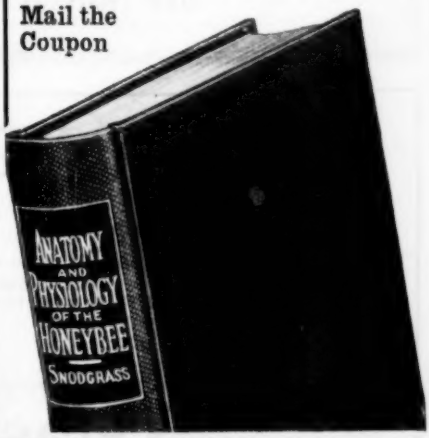
This book contains all that is known of the honeybee as an individual, including an account of its intricate structure, its physiology, and how it performs its many duties in the hive and in the field.

Particular attention is given to: the numerous sense organs of the bee; its methods of feeding; its digestion; the collecting and storing of pollen; the feeding of the brood; respiration; the storing of food reserves in the body; development of the larva from eggs; the transformation of the larva to the adult. All these subjects are presented in a clear and interesting manner, avoiding technical language as far as possible.

SEE IT FREE FOR 10 DAYS.

It's a great book on the honeybee—worth having—worth using. We will send you a copy on request for ten days' free examination. No obligation to purchase—no agents—no red tape. You simply agree to return the book, postpaid, in ten days or to remit for it then.

Mail the Coupon



Free Examination Coupon

McGraw-Hill Book Company, Inc.,
370 Seventh Ave., New York.

Send me for ten days' free examination Snodgrass' ANATOMY AND PHYSIOLOGY OF THE HONEYBEE, $3.50 net, post paid. I agree to remit for the book in ten days or to return it then, postpaid.

Name .....

Address .....

City and State .....

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GBC 6-1-25

BEE HIVES, SUPERS, SECTIONS,
COMB FOUNDATION,
THREE-PLY FOUNDATION, SMOKERS,
BEE VEILS, BEE GLOVES, BRUSHES,
QUEEN-EXCLUDERS, HONEY-EXTRACTORS,
HONEY-TANKS,
HUTZELMAN'S SOLUTION

Everything for the Bees
and all "Root Quality"

M. H. HUNT & SON, LANSING, MICHIGAN
510 NORTH CEDAR STREET

Honey Containers

2½-LB. CANS, PER CARTON OF 100	$1.00
5-LB. PAILS, PER CARTON OF 50	3.50
5-LB. PAILS, PER CARTON OF 100	6.75
10-LB. PAILS, PER CARTON OF 50	5.00

Write for prices on lithographed pails.

Above packed in cartons which are dust proof, light, and easy to handle, keeping your cans and pails clean until you are ready to use them.

5-POUND PAILS, PER CASE OF 12	$1.10
10-POUND PAILS, PER CASE OF 6	.90
60-POUND CANS, 1 PER CASE	.90
60-POUND CANS, 2 PER CASE	1.25

Above packed in wooden reshipping cases.

Glass Jars

8-OZ. HONEY CAPACITY, TALL OR FLUTED, PER CASE OF 24	$1.05
16-OZ. HONEY CAPACITY, TALL OR FLUTED, PER CASE OF 24	1.35
32-OZ HONEY CAPACITY, PER CASE OF 12	.95

All above prices F. O. B. Reedsville, Wisconsin. Write for prices on large quantities of pails and glass jars, stating number and sizes wanted.

Sections

4¼ x 4¼ x 1½-INCH PLAIN NO. 2, PER 1000	$7.50
4 x 5 x 1⅞-INCH PLAIN NO. 2, PER 1000	8.00
4¼ x 4¼ x 1⅞-INCH BEEWAY NO. 2, PER 1000	9.00

SAVE MONEY on your supplies by getting our quotations on your requirements.

A. H. Rusch & Son Co., Reedsville, Wisconsin

Selling Your Honey

One of the most important things in beekeeping is the proper marketing of the honey. Your package must be attractive, neat, easily remembered, distinctive from other food packages, and must hold the product securely, if it is to sell well.

The selection of such a container is a big responsibility and one that has demanded time and thought. It was only after testing out a number that we decided on our lithographed red-and-black soldered-seam honey pail because it meets all these requirements. It has a soldered non-leak seam that is guaranteed not to leak even when filled with hot honey, and it is very distinctive and attractive.

However, if you want a lower-priced lithographed container which will hold granulated honey perfectly we can furnish cans with our regular lithographed design, but with a cemented rather than a soldered seam, and either plain inside or lacquered. Plain tin cans have been used for years without any loss in quality to the honey. All extracted honey in carload lots is shipped in plain 60-pound cans.

Root's Honey Containers

HONEY CARTONS,
ROUND GLASS JARS,
GLASS TUMBLERS,
PLAIN TIN CONTAINERS,
PARCEL POST CANS,
COMB HONEY SHIPPING AND DISPLAY CASES,
WOOD SHIPPING CASES,
CORRUGATED SHIPPING CASES.

—Write for prices.—

New attractive carton printed in yellow and green.

THE A. I. ROOT CO.

MEDINA, OHIO

HOFFMAN & HAUCK, Inc.

1331 Ocean Ave. Ozone Park, L. I., New York

Glass and Tin Honey Containers

2½-pound Cans, in cartons of 100	$4.00 a carton
5-pound Pails, in cartons of 50	3.50 a carton
10-pound Pails, in cartons of 50	5.00 a carton
60-pound Tins, new, 2 tins per case	1.00 each
160-lb. Kegs (the ideal container for both buckw't & clover honey)	1.20 each

Glass Jars with Gold-Lacquered Caps

16-ounce honey capacity, 2 dozen per carton	$1.20 per carton
3-pound or quart capacity, 1 dozen per carton	.90 per carton

Special Hazel-Atlas Tall Jars, Including Caps

8-ounce honey capacity, 2 dozen per carton	$1.05 per carton
16-ounce honey capacity, 2 dozen per carton	1.35 per carton
2-pound honey capacity, 1 dozen per carton	.95 per carton

Honey for Road Stands

White Clover, 60-pound tins, crystallized	13c per lb.
White Clover, 60-pound tins, liquid	14c per lb.
L. A. Southern, 60-pound tins, liquid	12c per lb.

Do not buy your

BEE SUPPLIES

until you have our prices. Send us a list of your needs and we will quote you prices that will enable you to save money. Special discount to association members.

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Frames
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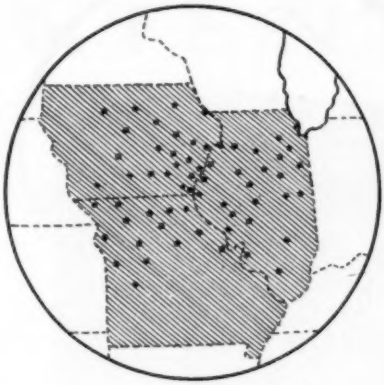


Veils
Smokers
Tools

Right Here at Home, Folks

with any quantity of Lewis "Beeware" you may need

Our dealers cover Iowa, Missouri, and Illinois at places shown in above map. The nearest dealer's name is on your 1925 catalogue. Write for your copy, if you haven't one.

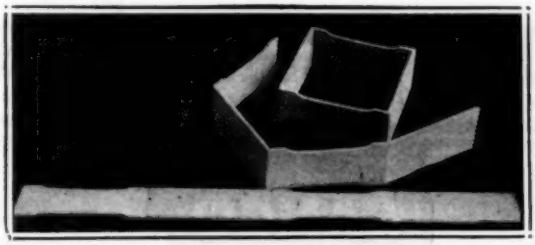
When the swarm is on the bush, wire, phone or write. You'll get **QUALITY** and **SERVICE**.

But—beat that swarm if possible. Order early. It will save you honey and worry—and will let us sleep nights.

Yours for a big year

Dadant & Sons, Hamilton, Illinois

DISTRIBUTORS OF LEWIS "BEEWARE" FOR IOWA, MISSOURI, AND ILLINOIS



DADANT'S WIRED NON SAG FOUNDATION

DADANT'S WIRED NON SAG FOUNDATION

Lewis high-grade, velvet finished Sections

Three sizes—2¼-pound cans, 5 and 10-pound pails. Green and red and gold—brilliant and appropriate design.

THIS decorated pail illustrates the kind of honey packages that won prizes at the Ohio State Fair last fall.

Honey buyers can't help take notice of cans like these. Are you taking advantage of these silent honey salesmen?

Complete line of Canco decorated honey cans and pails distributed by:

DADANT & SONS, Hamilton, Ill.

G. B. LEWIS COMPANY, Watertown, Wis.

10 Tivoli Street, Albany, N. Y.
844 N. Front Street, Memphis, Tenn.
408-410 12th Street, Lynchburg, Va.
23 W. 3rd Street, Sioux City, Iowa.
415 S. St. Francis Street, Wichita, Kan.

COLORADO HONEY PRODUCERS' ASSOCIATION, Denver, Colo.

American Can Company

NEW YORK CHICAGO SAN FRANCISCO PORTLAND, ORE.

American Can

CONTAINERS OF TIN PLATE · BLACK IRON · GALVANIZED IRON · FIBRE

TRADE CANCO MARK